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GREAT EXPORT.
GRAND-PRIX at the Paris Exposition, 1900.

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INDIA RUBBER WORLD

CAOUTCHOUC — HEVEA BRASILIENSIS — GUTTA-PERCHA — PALAQUIUM GUTTA

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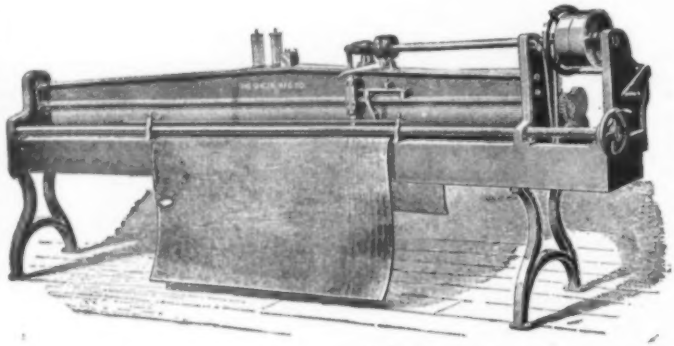

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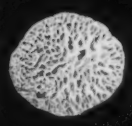

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THE OUTLOOK FOR AUTOMOBILES.

RUBBER manufacturers have as much reason as any other class to share in the interest in the outlook for automobiles, on account of the possible demand for rubber tires for the new vehicles. The first question, it seems to us, has to do with the extent to which automobiles are likely to be used. There has never been any question of the possibility of running carriages without the use of animal power. Every railway train demonstrates this possibility, and before there were any locomotives, steam wagons had been devised, each comprising its own motive power. More recently hundreds of patents have been granted, on two continents, for comparatively light carriages, designed to be speedy, easily managed, propelled by electricity or steam, with a view to the exclusion of horse drawn vehicles.

Thus far, however, the self propelled vehicle remains more or less a novelty. We hear of single contracts for thousands of vehicles, placed with manufacturing companies having an aggregate of hundreds of millions of capital—to say nothing of orders for automobile tires for 10,000 sets at a time—but there is apparent no such use of the new vehicles as should result from transactions of this magnitude. In these days of great accumulations of capital it is natural that, with every possible opportunity for a new industrial development, companies should be incorporated to take advantage of it, and doubtless some of the new corporations, with a very large nominal capital, could speedily make their capital real if orders were forthcoming for the production of automobiles. Again, a hundred manufacturing plants in America and Europe could, on short notice, begin turning out on a large scale horseless vehicles of types already devised, if purchasers for them were ready.

The trading at New York in shares of the principal companies formed to operate an electric cab service in certain large cities indicates a falling off from the first enthusiasm felt in regard to the new means of transportation. According to a New York financial paper the following range of prices has been observed:

	Opening, 1899.	Highest, 1899.	Oct. 15, 1900.
Electric Vehicle	15	151½	16
Electric Vehicle, preferred	55	150	40
New York Electric Vehicle Transportation	22	38	6
New England Electric Vehicle Transportation	12½	20	3¼
Illinois Transportation	....	16½	1⅜

Of course this is not evidence that we shall not yet see a very great use of self propelled vehicles. But who is to use them? To-day men of wealth and leisure are buying and running automobiles as a fad—quite apart from any consideration of cost or comparative economy. But neither a large nor a permanent demand can be expected from this source. As soon as their novelty has worn away such automobiles will be thrown aside for a newer plaything. When it comes to the average man, he is obliged to count not merely the first cost of an automobile, but also the cost of keeping it in condition, and nothing yet invented requires more careful attention to prevent it

from becoming useless. Clearly the demand for the new vehicles, to be privately owned as pleasure carriages, does not promise soon to be large. For passenger service, on city streets, controlled by large companies able to employ a force of competent care takers, the drawback exists, in American cities, at least, that street railways afford such facilities for travel at a cheap rate as to render the demand for cabs of any kind very small.

The hope was felt at one time that a wide use for self propelled vehicles would be found in the delivery of goods by great city stores and the express companies. Up to date, however, the department stores which have bought a few such vehicles appear to have done so chiefly for the sake of the advertising it has afforded them, and it remains to be proved that Wanamaker's stores, in New York and Philadelphia, or the Adams Express Co. can make deliveries more economically with automobiles than by means of the existing system of horse drawn wagons. It is not necessary here to consider the comparative merits of electric or steam vehicles, since each will be found to possess some advantage under certain conditions.

This has been written with no view to discouraging the automobile industry. We simply have failed to discern signs of its rapid development. The attendance at the recent automobile exhibitions, however, and the manifest interest in the two large exhibitions to be held in New York this month, are evidence that a demand exists somewhere for the new vehicles, and without doubt a regular business in their production will yet be developed. But it is the impression of some mechanical experts in America, shared by parties with whom the writer talked lately in Germany, that the ultimate chief field for automobiles will be for steam wagons for carrying goods, and that these will be operated without rubber tires. If this should prove true, there is little reason for the rubber industry to expect the manufacture of tires to become the most important branch of its output.

MOSQUITOES AND RUBBER PRICES.

MALARIA is one of the things that make India-rubber high priced. At least, its prevalence in tropical jungles is one of the great obstacles to be overcome in obtaining this most valuable of forest products. A house in Pará which had sent to one of the upriver rubber districts an additional force of 300 *seringueiros*, with supplies to last over the rubber collecting season, against the cost of which it was expected that a large quantity of rubber would be received, learned from the rubber camp at the end of the year that the net increase in the number of workers, by reason of the provision made in Pará, was only five. Unmarked forest graves accounted for the rest. So great is the menace of malarial diseases in the Congo basin, it is reported that, whereas the Belgians who go out there, in the service either of the government or of the great rubber trading companies, are under contract for two years, the average term of employment is actually only seven months. Those who do not die in Africa, go home in many cases permanently invalided.

Naturally a cure, or better a preventive, of the malarial scourge would be welcomed by all who are interested in the rubber trade, if only from commercial considerations. It is for this reason that scientists have risked their lives in the tropics in the attempt to get at the first cause of malaria, being spurred on in their work by the success which has attended the researches made in connection with so many other forms of disease, many of which have been robbed, in large measure, of their former terrors. There exists in Liverpool a School of Tropical Medicine, members of which have made exhaustive researches in the valley of the Niger, in west Africa—regarded as one of the most unhealthful regions known to white men—and another delegation is now on a similar errand in the Amazon country.

It is at least interesting to know that members of this school, in common with not a few other men of high standing in the medical fraternity, lay all the blame for malaria upon the already execrated mosquito. Members of the Liverpool school who went freely through the Niger country, without other precaution against malarial attacks than the wearing of mosquito nets, reported perfect immunity from the disease, while others, who bravely exposed themselves to the bites of the poisonous gnats, contracted the disease.

If the truth of this theory should once become established, the result could not fail to be a great advance in the development of tropical countries, and particularly of the rubber producing districts, which are now the most difficult portions of the earth for white men to operate in. It would be a comparatively simple matter for a rubber gatherer to guard himself effectually against mosquito bites, and all that stands in the way of largely increasing the rubber output is to lessen the danger, not only to aliens, but also to natives, of living and working in the forests where this commodity is found. The next development would be along the line of lower prices for rubber and a corresponding increase in its consumption.

ONE OF THE RUBBER SHOE COMPANIES has issued a notice to the trade rescinding an earlier announcement of a change of discounts on November 1, for the reason that different discounts for different seasons have an unsettling effect on business and such a policy does not "create an actual market for one extra pair of boots and shoes." As to the benefits to the manufacturer of offering an extra discount for early orders for rubber footwear, there must be two sides to the question, else this policy would not be pursued to so important an extent in the trade. But it is very doubtful whether the number of rubbers actually worn in any given winter is affected by such considerations as the size of the profits per pair made by manufacturers and dealers, especially as the price to the public is not changed.

THE FIRST THING THAT AN AMERICAN hears of rubber planting, as a rule, is that some company with a high sounding name, composed of people who never saw a rubber tree, is offering to sell an interest in a plantation yet to be formed. He seldom hears of a man with capital and a knowledge of tropical planting, who is spending his own money to set out rubber trees, with a view to deriving a profit from marketing the product.

Yet there are people in the world of this very type, and one such man will do more to establish this new interest on a respectable basis—and, particularly, on a paying basis—than a hundred of the share selling concerns. On another page is printed a letter from the president of a company operating the largest rubber factory in the world, who has concluded to experiment in a large way in rubber planting, using his own money, instead of asking everybody to buy shares on a promise of 100 per cent. profits. We are convinced that our correspondent would not risk his capital in this business unless some apparent good reason existed, and we look for the application to his planting enterprise of the same good business methods that have made his factory successful. This is the best way in which a satisfactory solution can be reached of the question whether India-rubber can be produced by cultivation at a profit. As a scientific question, the case for rubber planting has been decided already in the affirmative.

THE PROPER POLICY OF MANUFACTURERS in respect to the buying of crude rubber, to which we lately devoted a column or so, is brought to mind again by a communication printed elsewhere in this issue, to which the attention of the consumers of rubber is invited. Rubber manufacturers are like everybody else, in that they do not care to pay more for what they are obliged to buy than can be helped. The question is not a new one as to whether, by the adoption of any particular policy, the rubber factories can secure their raw material, either at a permanently lower cost, or at least with fewer fluctuations than have been experienced hitherto. Naturally a suggestion bearing upon this subject, when it comes from the selling interest, will be regarded cautiously by the buying interest, but nevertheless the letter to which we refer, signed "An Importer," may give to some of our readers food for thought which they will appreciate.

GUTTA-PERCHA CAN HARDLY BE AS SCARCE as some people insist, else one of the leading cable construction companies in England would hardly tender to construct the proposed Pacific cable within the limits of the estimated cost, agreeing to complete the work in eighteen months from the date of contract. It is no secret that considerable quantities of Gutta-percha exist in the shape of "invisible stocks" in the hands of manufacturers, whereas comparatively little India-rubber is to be found outside of the hands of dealers. For this reason, when an important piece of submarine cable work is projected, it is not necessary to wait until the requisite amount of Gutta-percha is brought from distant forests.

RUBBER FROM A NEW SOURCE has begun to appear in the European markets—due to the interest shown by the French government in developing its colonial possessions in south-eastern Asia, under circumstances which suggest the possibility of the existence of rubber throughout a wide zone between Assam and the Pacific ocean. The facts here developed have a certain interest in lending hope that rubber may be found in important quantities in the Philippines, where a search for this material is to be prosecuted systematically by the United States government.

THE exports of block Balata from the port of Cuidad Bolivar, Venezuela, are stated to have been 509 tons in 1898 and 747 tons in 1899, while probably the latter figure will be doubled in 1900. The exports from the lower Orinoco are estimated at as much more. There is said to be an increasing damand for Balata in the United States.

LITERATURE OF INDIA-RUBBER.

THE RUBBER INDUSTRY IN THE BRITISH SOUTH AFRICA COMpany's Territories. By P. Lyttleton Gell. Department of Agriculture, Salisbury, Rhodesia. 1900. [Paper. Small 4to. 28 pp.]

THIS report will be treated in some detail in other departments of THE INDIA RUBBER WORLD. It is an interesting and important collection of facts relative to governmental supervision of rubber production.

IN CURRENT PERIODICALS.

DIE Kautschukkultur aus den Pamanukan-und Tjiasem-Landen in Java. By Dr. Axel Preyer.=*Der Tropenpflanzer*, Berlin. IV-9 (September, 1900.) pp. 428-435.

Der Mangababaum (*Hancornia speciosa*) und dessen Kautschuk. By Dr. H. Blumenau.=*Der Tropenpflanzer*, Berlin. IV-9 (September, 1900). pp. 440-443.

Observations on *Latex* and its Functions. By John Parkin, M. A. [Bearing upon the nature of the coagulation of India-rubber.]=*Annals of Botany*, London. XIV-54 (June, 1900). pp. 193-214 and plate.

Castilloa Tunu (Hemsley). [The tree in Costa Rica and elsewhere in Central America and elsewhere yielding the gum known commercially as "Tuno."]=Hooker's *Icones Plantarum*, London. VII-3 (August, 1900). pp. 1-2 and plate 2651.

Some Interesting Faults met with in Cable Manufacture. By J. Wright. [Faults relating to impurities in insulating materials or to processess of applying the same.]=*The Electrical Review*, London. XLVII-1194 (October 12, 1900). pp. 605-607.

RUBBER PLANTING REPORTS.

LA Oaxaqueña Plantation Co., Chicago, Illinois.=Report of the Committee appointed by the Board of Directors, June 1, 1900, to make an Inspection of the Company's properties. 12 pp. *Also:* A few Positive Facts; Not a Prospectus. 6 pp.

Isthmus Plantation Association of Mexico, Milwaukee, Wisconsin.= "What is the Reason?"—a prospectus. 32 pp.

La Zacualpa Rubber Plantation Co., San Francisco, California.= Prospectus and First Annual Report of the resident director of the plantation. 52 pp. *Also:* "The Rubber Planters' Bulletin"—an occasional publication. Nos. 5, 6, 7, 8, and 9. 4 pp. each.

The American Tropical Planting Co., Philadelphia, Pennsylvania.= Our Large Dividends; How and Why We Can Afford to Pay Them. 29 pp. *Also:* The Main Points of the Proposition. 27 pp.

Aztec Plantation Co., Chicago, Illinois.=Prospectus and report to the stockholders of a visit to Mexico by the secretary, Oscar Meyer. 64 pp.

Chiapas Rubber Plantation and Investment Co., San Francisco, California.=(1) Illustrated Prospectus. 48 pp. (2) Report of J. W. Ellsworth, managing director. 12 pp. (3) Fine Photographs of Rubber Trees—with descriptions. 12 pp. (4) Report of the Committee of Investors sent to Mexico to Investigate the Property of the Company. 24 pp.

OTHER PUBLICATIONS RECEIVED.

FORESTRY IN BRITISH INDIA. BY B. RIBBENTROP, C. I. E., INSPECtor-General of Forests to the Government of India. Calcutta: Superintendent of Government Printing. 1900. [Boards. 8vo. pp. vi+245 and maps, Price 8 rupees.]

THE author of this book has signalized the close of his career in the Indian forest service of thirty-three years by preparing a general description of the forests and a résumé of the introduction and growth of forestry in that country. In many respects this has been the most important work in forest conservancy in any country, and one which may be studied to good purpose by the United States authorities in dealing with forestry problems in our new dependencies, and even in our home domain. Incidentally, Mr. Ribbentrop touches upon the subject of India-rubber, which appears now to be claiming the attention of the authorities in the Philippine islands, in somewhat the same way as in India.

A SUGGESTION TO BUYERS OF RUBBER.

TO THE EDITOR OF THE INDIA RUBBER WORLD: As you are aware, manufacturers generally carried, until a few years ago, a more or less important reserve stock of crude rubber, which in no wise appeared in the ordinary rubber statistics, but which nevertheless formed a substantial factor in the fluctuations of the market. When prices began to rise higher and higher, consumers did not abstain all at once and entirely from buying, but they got more and more into the way of drawing upon their reserves, until at last the moment arrived when, broadly speaking, the last trace of a reserve stock had disappeared, and all further requirements were filled on the basis of the present "hand to mouth" policy.

As you have already so well demonstrated in your leading editorial in the September INDIA RUBBER WORLD, it would be absolutely impossible to revert all at once to the former state of affairs, for the simple reason that even if all the rubber stocks in the world were to be divided among the factories instead of remaining in dealers' hands, there would only be a comparatively small amount left for each factory. In the same way, however, that the former "invisible supply" disappeared, only very slowly and by degrees, so it would have to be built up again by an equally gradual process; not so much, as you seem to suggest, by covering an actual want of two tons all at once, instead of in two or three installments, but by buying *three* tons every time *two* tons are actually required the excess going towards building up the suggested reserve or "invisible supply."

The very fact that it would probably take a couple of years or even more for manufacturers, *as a class*, to build up a reserve supply of raw material large enough to protect them against artificial manipulation of the market, is one of the strongest points in the argument that there seems little or no prospect of a more reasonable level of prices being anything like permanently restored for a good while to come. AN IMPORTER.

New York, October 13, 1900.

THE RUBBER INDUSTRY IN JAPAN.

TWO rubber manufacturing concerns in Tokio, Japan—the Yoshida and the Hashimoto works—have been consolidated under the style of the Nippon Gomu Seizo Kaibushika Kaisha (the Japan Rubber Manufacturing Co.), with a capital of 150,000 yen. They manufacture mechanical rubber goods, and it has been mentioned that the incentive for the consolidation has been to meet the competition of the Toyo Gomu Kabushiki Kaisha (of Tokio) which was mentioned in THE INDIA RUBBER WORLD of July last, on the occasion of a visit to the United States of a member of the latter company to buy machinery.

A mechanical rubber goods factory on a considerable scale is reported to have been established latly in or near the city of Osaka.

There are several small establishments in Japan capable of making waterproof and airproof goods of rubber, by the employment of primitive methods, as by spreading the rubber with a knife or brushes. Such factories produce air cushions, pillows, bags, and waterproof cloth for the jinrikshas.

A price list, printed in Japanese, of the products of the Patented Cotton Belt Co. (Tokio)—as it would be called in English—has been received by THE INDIA RUBBER WORLD. They have a growing demand for two-ply belting for the silk manufacturers, and, by the way, desire information regarding improved machinery for weaving such belts.

NEW ENGLAND RUBBER CLUB.

THE fall meeting of the New England Rubber Club, which will occur in Boston on the evening of the third Monday in November, the date being the 19th of the month, promises to be a notable affair. The year 1900 being the centenary of the birth of Charles Goodyear, it is proposed to make the dinner commemorative of that event. Ex-Governor Augustus O. Bourn will act as toastmaster, and brilliant after dinner speakers, some of them belonging to professions outside of the rubber trade, will be in attendance. The gathering promises not only to be large, but an extremely interesting one, the entertainment committee having prepared a program that in many ways is unique among the club dinners. Young's Hotel, Boston, is spoken of as the dining place. Announcement in full will be made by the secretary to individual members very shortly. Among those who have been invited to be present and participate in the exercises are his Excellency, Senhor Joaquin Francisco de Assis Brasil, the Brazilian minister at Washington; Hon. L. D. Apsley, Hudson, Mass.; Professor William H. Goodyear, Brooklyn; Charles Goodyear, 3d, New York; ex Congressman L. D. Apsley, Hudson, Mass.; Hon. J. L. Myers, speaker of the Massachusetts house of representatives; Hon. Samuel J. Elder, and others.

SEEDS OF THE "TUNO" TREE WANTED.

WE have an inquiry from a botanic garden for seeds of the "Tuno" tree, which occurs in Nicaragua and elsewhere in Central America, and the product of which sometimes appears in the crude rubber market. Up to a certain time this tree was supposed, even at the Kew royal gardens, to be identical with *Castilloa elastica*, but in the August number of Hooker's *Icones Plantarum* it is designated by W. Botting Hemsley as a distinctly different species—*Castilloa tunu*. The genus *Castilloa* ranges from Mexico and Honduras to Ecuador and Bolivia, and in this wide area, extending through more than 25° of latitude, or nearly 2000 miles, a single species might be expected to exhibit a considerable amount of variation, due to local conditions and the age of the trees. Gradually, therefore, botanists have begun to classify several species of *Castilloa*, instead, as formerly, of ascribing all the specimens collected to *Castilloa elastica* (Cervantes). Thus the Panama rubber trees introduced into Ceylon in 1876, and at first supposed to be the *Castilloa elastica*, are now regarded as belonging to a distinct species from the Mexican rubber tree. They have been identified as the *Castilloa Markhamiana* (Markham).

Regarding the product of the tree about which we have an inquiry, Pearson's "Crude Rubber and Compounding Ingredients" says:

"Tuno is a trade name of uncertain origin applied to a gum gathered principally in Nicaragua and Honduras. . . . The milk is coagulated with the aid of heat. The gum is but slightly elastic, is very sticky when heated, and is cheap. It is used as a friction gum and is also mixed with Balata in the manufacture of belting. Sometimes it is sold under the name 'Seiba gum,' its identity being lost by ingenious massing and manipulation under water. Nicaragua rubber adulterated with 'tuno' in coagulation soon hardens and loses its identity. Also spelled 'toonu' and 'tunu.'"

FOR the importation of bicycles made by the American Bicycle Co., a limited liability company with 100,000 marks capital has been formed in Hamburg, of which F. Chr. Chandler is manager.

SOME PROBLEMS IN RUBBER ANALYSIS.

By H. L. Terry, F. I. C.

GREAT as has been the progress made in the last decade in the way of putting the analysis of India-rubber goods on a satisfactory basis, it must be confessed that much yet remains to be accomplished. Not that there is anything at all surprising in this, seeing what a heterogeneous compound the modern rubber "mixing" so often is, and bearing in mind also the limited number of investigators who have worked hitherto in this field. Unlike the analysis of alloys or minerals, the analysis of rubber compounds presents the difficulty that the various organic and inorganic constituents which may be in conjunction, may not be susceptible of determination or separation, though this may be easy enough if only one or two are mixed with rubber. The method that used to be somewhat prominent in water analysis, of assigning the various bases and acid to one another, has come to be looked upon somewhat with suspicion, and extreme caution should be evinced by the rubber analyist in committing himself to a similar line of procedure. If the analysis is required by a manufacturer as an aid to practical work, it is advisable on more than one ground for the analyist to take refuge behind the bulwark of the *nescio quo modo*, and to state his results under some reservation, for by this course of action he is less likely to prove an enemy to his client than if he stated his results as the embodiment of accuracy. In a great many cases accuracy is quite unattainable, and in some cases even an approach to it is impossible, at least from the rubber manufacturer's point of view. To give a concrete instance of what I mean: Carbon is put into rubber mixings in three or four forms, which, though chemically speaking all practically the same, are very different in their physical properties, and in their significance to the rubber manufacturer. The analyist may report so much carbon, or lampblack, as being present, but what the manufacturer wants to know is what sort of carbon is he to buy to produce goods of similar quality; is he to buy ground wood charcoal at less than £1 a cwt., or the finest oil black at perhaps 1 shilling per pound? Other instances of a like nature might be given, but this will suffice to make the point clear, that there is room for a good deal more improvement in rubber analysis to satisfy the somewhat grasping demands of the trader, who, it must be confessed, is not always sympathetic enough with the analyist in the difficulties by which the latter finds himself beset.

In a great many cases such detail as that just referred to is quite impossible of achievement, though one does not care to be dogmatic about what the future may have in store for us, as the consequence of careful research. Whether such research is likely to prove profitable to the experimenter is an issue with regard to which much doubt attaches, and it is rather a case for each one to consider how far his position justifies him in devoting himself to labor which may probably prove quite unproductive from a purely pecuniary standpoint—a standpoint, be it said, which has never been prominent among the most earnest devotees of science. It may, however, be laid down as a general truth, that those who devote time and trouble to points of chemistry which the analysis under discussion necessitates, but rarely fail to recoup themselves, if not directly, at any rate, indirectly, by the utilization of the knowledge of detail which they thereby acquire. Such utilization may be effected at once, or it may be deferred for years, but the prospects which such research holds out are certainly alluring enough to spur the investigator on in his attempts to throw light on hidden paths. Last year a rubber manufacturer wrote to the *Gummi Zeitung* expressing his conviction that analysis was "no good" in the case of rubber. He had, it appeared, made up a complicated "mixing" and sent it to three different analysists, whose reports on it were anything but identical. With regard, however, to the circumstances which led to the emphatic declaration of the manufacturer, I would like to suggest that perhaps he did not exercise sufficient care in the selection of the analysists, and I would say further, that there is hardly a branch of trade where samples of goods cannot be so concocted as to put even the most expert analysists in that branch into the direst difficulties. Anyhow, the sweeping assertion as to the worthlessness of such analysis certainly cannot be borne out, though it must be confessed that some of the work done by incompetent persons has been of a nature to bring discredit upon rubber analysis generally.

But to leave the general for the particular it will be fitting to glance at one or two cases which suggest themselves as typical among the problems that await solution, and we may begin with the metallic earth calcium. This may be put into rubber in several forms, the two most prominent being the hydrate or lime and the carbonate commonly known as whiting. Where either is present alone the estimation presents no great difficulty, but the reverse is the case when they are present together. It is not my intention to go into analytical details in this article, but merely to point out where difficulties exist, so the point is just mentioned without further comment. Where whiting is present in any quantity—say 40 or 50 per cent.—it must not be overlooked that as it is never pure it introduces a few per cent. of other bodies, such as silica, alumina, and magnesia into the mixing. I have frequently found 1 or 2 per cent. of magnesia in a mixing certified to be free from this element, but containing a large proportion of whiting. Where these impurities are found only in small quantities it is really more accurate in giving the result of the analysis to lump them all together under the head of whiting; otherwise the manufacturer may be put to unnecessary trouble and perhaps loss by introducing these extraneous bodies into a mixing in excess. Two per cent. of magnesia in the whiting may give a result different from that obtained if an extra 2 per cent. is added, and so with silica. What has been said about the occurrence of lime and whiting together holds good also with magnesia, which may be present as carbonate—the usual form—or as oxide, a form in which some few manufacturers have utilized it, though as far as I am concerned I prefer to use the carbonate exclusively as being more desirable for two or three reasons. This carbonate of magnesia, it should be said, is really a hydrocarbonate and has an alkaline reaction, and this, coupled with the fact that it loses its carbonic acid at a rather low temperature, renders the discrimination between this body and the oxide in a rubber mixing a matter of considerable difficulty, if, indeed, it does not entirely baffle the analyst.

Yet another instance of a similar kind: Zinc carbonate may be present in a mixing in conjunction with the oxide or zinc white, and it is a safe surmise that its presence will be overlooked if the analysis is carried out in the ordinary manner. Zinc sulphide is also used to a limited extent both by itself and in admixture with sulphate of barytes as lithopone, and in the process of burning the rubber for ash it becomes converted into the oxide, thus complicating matters for the analyst if

oxide was also originally present, although the larger amount of sulphur present would indicate a sulphide. Again with the carbonate and oxides of lead similar difficulties arise, though as the present day tendency is to use litharge exclusively in place of white lead or red lead any complete method for identifying and estimating the various lead compounds hardly suggests itself as being worth the trouble of working out. With regard to oxide of iron, the figure returned by the analyst may not agree with the rubber manufacturer's ideas, but it must be remembered that, though the manufacturer may buy so-called oxide of iron or red oxide or Venetian red, whatever name he buys the compound under, the analyst returns only the amount of pure oxide of iron, any admixture such as whiting or barytes being given separately under their respective headings. There should be no difficulty, however, in conforming to an analysis thus stated if the manufacturer takes care to buy pure oxide of iron, for which of course he must expect to pay a higher price than for any of the innumerable mixtures that are on the market. It is important that the analyst should have a clear knowledge of the usual composition of the rubber chemicals in general use, or else he may prove an unwitting source of trouble. To give a case in point, it is well known that the best English brands of golden sulphide of antimony contain a considerable proportion of gypsum or sulphate of lime, not added directly, but produced in the chemical process by which the antimony is made. In a case where some red goods had gone wrong by defective vulcanization this gypsum was suddenly discovered by an analyst and was pounced upon as the source of the mischief; an hypothesis, however, which had to be abandoned when it was shown that the firm in question had been using antimony containing the same proportion of gypsum for many years continuously, with the best results.

So much for some of the mineral constituents of the mixing: if we now proceed to consider the analytical problems that await solution in respect to the determination of the organic matters present the case will be found to be of much greater complexity. Certainly we are in possession of analytical processes which enable us to determine substitute to a sufficient degree of accuracy: it is rather to the lack of our knowledge, in the way of discriminating between the different qualities of rubber that I wish here to draw particular attention. It is customary for various corporate bodies in England—railway companies and the like—when advertising for tenders for rubber goods, to insert a clause to the effect that none but Pará rubber must be used. In many cases no real importance is attached by the advertisers to this clause, and they would be very much surprised if the price quoted was at all conformable to the market price of Pará rubber, but there are others who really wish to have Pará rubber, and it is to buyers such as these that a really reliable method of estimating the relative proportions of Pará and African or West Indian [Central] varieties in a mixing would be hailed with delight. In pneumatic tire cases, too, the matter is of some importance, as there have been disputes as to the quality of the rubber used, though it has hitherto been found exceedingly difficult to find an expert who was prepared to be positive about the conclusions he had come to. At present it is usual to weigh all the facts with the results yielded by certain chemical and physical tests, but it is clear that, in the absence of more absolute and trustworthy methods of analysis than we at present possess, it is impossible to give a report without a certain amount of reservation which renders it practically useless in a court of law. Of course there are chemists and chemists in this matter, and there are not wanting those who by close attention to the details involved may be considered competent to give an opinion approaching as near to trustworthiness as can be expected under the circumstances.

In the course of a dispute which arose not long ago in England concerning the early decay of a large number of pneumatic tires, and which came before one of the high courts of justice in London, the purchaser who brought the action was much put to it to find an expert willing to give evidence as to the quality of the rubber, there being various reasons why the few men who might be considered competent as witnesses were unable to appear in court, a prominent one being that they were either in the employ of competitors of the firm proceeded against, or, from certain business considerations, thought it against their own interest to give evidence against the firm. Both of these reasons, it will be at once seen, are of real weight, and in a branch of manufacture so limited as is that of rubber it is difficult to see how they can be expected to be any less potent in the future than in the past, as the outside expert who has no business connection with a factory can hardly expect to be able to keep up his reputation in the technology of the trade or to be able to speak with as much confidence as he who is ever moving about in the works and keeping fully abreast of the changes which are continually taking place both in materials and in procedure.

A point in connection with these problems of rubber analysis which must not be overlooked is that as all rubber works chemists are not equally communicative as regards taking each other into their confidence with respect to methods of analysis, it may be that a good deal of what I have referred to as being yet involved in obscurity may have had its darkness illumined in quarters where prompt publication is the exception rather than the rule. That this is the case I am not at all sanguine, but still the possibility of it necessitates a certain amount of reserve when one is writing under the title which I have selected. The rather wide question as to the general desirability of publishing broadcast the results of analytical research is one which I shall not enter upon here, beyond saying that those who are in favor of publication seem to have presented a pretty strong case which the dissentients will find it somewhat difficult to overthrow. The fact that one or two names have become household words in the domain of rubber analysis seems to have acted in preventing younger aspirants to fame in this direction from venturing on publication by word of mouth or by pen. But to take up such a position seems to betoken on the new comer's part a lack of faith in his own powers to answer possible criticism and in some case no doubt this timorousness is well founded; in other cases, however, where the chemist is of undoubted attainments I consider it as rather derogatory to himself as well as unfortunate for his peers that he allows his timidity to obtain so strong a hold over his actions.

Manchester, England, September 6, 1900.

RUBBER HOSE CALLED DANGEROUS.

THE Pittsburgh (Pa.) *Commercial Gazette* states that the local board of fire underwriters has taken action against the use of rubber hose for natural gas stove connections in mercantile buildings, classifying it as "defective apparatus," and charging 25 per cent. for the defect. Fire underwriters have found that rubber hose frequently becomes detached by accidental means, and that after having been in use for a considerable time it cracks, in either event permitting the gas to escape, thus causing frequent small fires, and, in recent cases, fires of considerable loss. It would be interesting to have views of the rubber trade on this point.

SUBSTITUTES FOR RUBBER AND GUTTA IN INSULATION WORK.

IT is by no means so easy as would appear at first sight to obtain a *satisfactory* substitute for India-rubber and Gutta-percha in the insulation of cables, writes J. Wright in the London *Electrical Review*. It must be remembered, he continues, that flexibility, combined with mechanical strength, and resistance to the passage of electric currents of varying tension, disruptive or otherwise, to say nothing of absence of porosity and durability under extremely variable climatic conditions, are but few of the many essential properties which must be possessed in the requisite degree by the substitute. India-rubber is a gum obtained from the sap found in the bark of certain trees indigenous to the tropics. It exudes on an incision being made in the bark for the purpose, and is collected by the natives in various ways. The main object aimed at, however, is to procure the coagulation of the rubber. In South America this is accomplished by exposing the sap in thin layers to the smoke of a wood fire. If this drying be not properly effected, the rubber retains a certain compound which acts as a form of solvent and destroys it. This destructive agent is always present in a greater or lesser degree, and shows its presence in rubber which has been exposed to the atmosphere for a lengthened period, by converting it into a treacly mass contained by an outer oxydized crust which is extremely brittle.

Pará rubber, when freshly procured, says Mr. Wright, is extremely elastic, and has a generous modicum of "life,' but, unfortunately, it is impossible to employ it in this condition for insulating purposes, as the impurities which all samples contain necessitate a somewhat severe course of washing and mastication in powerful machines, which treatment decreases its vitality in a marked degree, but, at the same time, renders it, in the form of sheet or strip, of such consistency as to be suitable for applying to the cable.

Pure Pará gum is too expensive to employ alone as an efficient insulating coat, and it is, therefore, applied as a single thin layer, supplemented by a layer or layers of compound rubber which consist of an admixture of pure rubber with certain other ingredients, such as French chalk, sulphur, naphtha (as a solvent), etc., with which, by a due series of apportioning, the quality and nature of the resultant rubber compound is *toned*, so to speak, to the pitch required in practice. The resultant rubber, as may be expected, is in the form of a workable mass, not unlike thick putty in the majority of cases, and in this state is applied to the cable or wire in the form of strips.

There are two methods of applying rubber strip to a cable. The slower and more expensive method is by lapping it spirally, two adjacent layers being lapped in opposite directions in order to absorb the joint and render the coating homogeneous. The other method, and the one more generally adopted, is by longitudinal compression. Two strips of rubber are applied to the cable, one above and the other below, and are compressed together at the sides in the form of a seam, by their passage with the cable between a pair of hard steel rolls revolving in contact, and semicircularly grooved to the finished diameter of the covered cable. The seam thus made is an efficient one, and depends on a peculiar property possessed by rubber to a marked degree—viz., cohesion. If two freshly cut rubber surfaces be brought into immediate contact, they will cohere and form as homogeneous a mass as the uncut remainder.

Mr. Wright here refers to an article by H. L. Terry, in *The Electrician* (London), in which stress is laid on the subject of the seam in rubber covered cables, evidently inclining to regard it a weak point. But Mr. Wright suggests that if proper precautions be taken for the exclusion of dirt and moisture, and the covering rolls be accurately turned so as to form a complete circle, there is no danger of weakness.

The subsequent process consists in spirally lapping the cable with a strong canvas tape to resist expansion and its subsequent vulcanization by exposure to steam pressure at a stated temperature for a certain period. This latter process imparts elasticity and durability to the compound by a combination of sulphur, which is one of the ingredients.

By the judicious apportioning of the ingredients in the rubber compound, and by varying the thickness of the primary coating of pure rubber, the insulation resistance per mile of the finished cable is controlled, and in this manner any result from a few megohms to several thousand may be obtained. The subsequent results are, of course, slightly variable—*i. e.*, they do not resolve themselves into round figures, but an approximation to the required result is easily obtained by experiment. It is also possible to vary the subsequent insulation resistance by the degree of vulcanization, for the longer a rubber compound is vulcanized, up to a certain point, the higher will be its *immediate* insulation resistance. Such treatment, however, beyond the recognized time limit is extremely injurious, as it shortens the "life" of the cable by artificially ageing it; it is a trick resorted to nevertheless by unscrupulous manufacturers to bring their cables up to the specified insulation.

In the earlier days of rubber insulated cables it was a recognized thing for engineers and others to specify high insulation resistances, and insist on having them, a custom which has, however, led to an investment in wisdom at the expense of the purchaser. With rubber, as with Gutta-percha, it is not "initial megohms per mile" which are required so much as durability, low electrostatic capacity, and resistance to disruptive discharge.

There is next to be touched upon the vulcanization process, which is based upon one of the most important properties of rubber, viz., that of combining chemically with sulphur when under steam pressure at temperatures varying from 250° to 350° F. The action is purely a chemical one, and the rubber, after the process, assumes an elasticity and durability which it did not possess in its raw mixed condition; moreover, the longitudinal seam due to manufacture is rendered homogeneous by it, and is, in fact, difficult to localize after vulcanization. It is important to blend with the other ingredients just sufficient sulphur, and no more, than the rubber will take up, as, otherwise, a certain quantity of sulphur will be left free, and will, by its presence, tend to corrode the copper conductor. For this reason the latter is tinned, and in many cases what is known as a "separator" or layer of rubber with little or no sulphur in its constitution is introduced between the primary layer of pure and the outer one of compound rubber, with the object of absorbing any excess of sulphur not taken up.

With a good quality, properly vulcanized, rubber covered cable or wire, one can do almost anything, short of willfully damaging the rubber coat. It will stand bending round its own diameter, and, indeed, very severe handling, before deleterious effects will be observed.

Gutta-percha, also an expensive material for insulating purposes, is not suitable for electric light and power work, where an appreciable rise of temperature in the metallic conductors themselves is at times unavoidable, owing to its susceptibility to variations of temperature. It is, however, admirably adapted for submarine telegraph cables, and also for telegraph and telephone wires laid underground. When new, it has a very light tint, but ages rapidly with exposure to air, darkening in color, owing to the formation of a crust of oxide on its outer surface, which becomes very brittle. The best conditions for its maintenance are to place it under water having a fairly even temperature of from 40° to 80° F. This prevents oxydization, and will last under these conditions for years.

For underground work it is usually covered with a strong spiral canvas tape saturated with Stockholm tar, from which, however, the natural acids have previously been extracted. This latter is an important point. Such a covering has a similar preservative effect to the foregoing immersion in water, and it prevents ingress of air, and, in a moist atmosphere, at a fairly even temperature, answers very well.

The Callender cables are insulated with a substance known as "bitite," which consists essentially of purified vulcanized bitumen. They are very suitable for low pressure town mains and feeders where they are not likely to be disturbed, and, for such purpose, are usually laid, in troughs filled up solid with a bituminous compound. For general work, however, they will not stand the manipulation that rubber insulated cables are capable of withstanding.

Fiber cables, another substitute for rubber, are certainly cheaper, but they have disadvantages which, to a certain extent, annul any advantages due to a low prime cost. They consist mainly of a fibrous material, such as hemp, loosely wrapped round the conductor, and impregnated with suitable insulating compounds, such as bitumen, etc., and subsequently sheathed with lead to exclude moisture. Their disadvantages are numerous; in the first instance, fibrous materials are hygroscopic, and require to be well heated to expel any moisture which they may contain before being lead-sheathed. This heating tends to destroy the fiber. Then, again, air, although a splendid insulator when in a dry state, is unable to withstand disruptive discharges of electricity, and it is practically impossible to manufacture a fiber cable and guarantee the insulating material absolutely free from air, as the latter is readily retained in the form of minute bubbles, which, when the cable is subjected to a high E.M.F., speedily assert their existence by the breaking down of the insulation at that point. Finally, these cables depend for their insulating qualities on the total exclusion of moisture, and a pinhole in the lead sheathing, although not discernable under the initial tests, means the subsequent development of a fault. Pure lead also, if placed directly in the ground, is very subject to corrosion, although a slight alloy of tin decreases the risk in this respect.

To pass on to paper insulation. As far as telephone work is concerned, paper has evidently come to stay. As an insulating material it is light, cheap in prime cost, and—most important point of all—its specific inductive capacity is extremely low compared with other materials, all of which render it an admirable insulation for underground multiple wire telephone cables. Such cables have been largely adopted by the National Telephone Co., the paper being packed quite loosely around the wires in the lead sheathing, and, in conjunction with their system of passing a continuous current of dry air through the containing sheath, have proved highly satisfactory.

For electric light and power, paper insulated cables, as manufactured by the British Insulated Wire Co., for instance, are subject to the same disadvantages as fiber cables; but withal, are of comparatively low prime cost and are eminently suitable for low pressure mains and feeders, as well as with a greater thickness of dielectric for high pressures.

Summing up the various materials in vogue for cable insulation to-day, what is urgently required is a substance which, while possessing the durability, elasticity, and imperviousness of rubber, shall be cheap, and yield good results electrically—*i.e.*, it must possess a low specific inductive capacity, and a high specific resistance, under all ordinary conditions, and above all, be capable of easy application to the wire or cable which it is intended to insulate.

Such a substance is not at present on the market, but a fortune awaits the lucky individual who discovers and patents such a compound.

A NEW INSULATING COMPOUND.

SOME interesting tests were conducted lately by Dr. Louis Duncan, at the factory of the Safety Insulated Wire and Cable Co. (New York), says the *Electrical Review*, upon a new insulating material of a plastic character applied to the surface of a wire. The wire used in the experiments was of soft-drawn copper, No. 4 B. & S. gage, and was covered with the insulating material in a manner similar to the construction of an ordinary weatherproof wire. The work of making the wire had been done by hand, and necessarily the piece tested contained numerous imperfections which would not have been present in a piece of machine-made material. The insulating covering was surrounded by lead in the usual way in order to facilitate the test.

It is possible, in the well-equipped laboratory of the Safety company, to subject wires under test to large alternating-current pressures with various graduations. The test commenced by the application of an alternating potential of 1000 volts, this being rapidly increased by steps of 1000 volts up to 20,000 volts; at this point the pressure remained constant for five minutes and was increased by steps of 1000 volts until 25,000 volts was reached. At the latter pressure the insulation remained under strain for five minutes longer and the pressure was then increased by small steps until the wire broke down at about 25,600 volts. The break was in a joint and it is believed that, had the insulation been applied by machinery, under an even pressure, about 45,000 volts could have been withstood. The covering of the wire was about one-quarter inch in average thickness.

A second piece of wire similar to the first and 20 feet long, but containing 20 joints in the insulation, did not break down until 10,000 volts was reached, when one of the joints gave way. The wire being cut at this point the longer portion was again subjected to pressures up to 20,000 volts before breaking down.

It is stated by those interested in the new insulation that a wire capable of withstanding a constant pressure of 100,000 volts alternating may easily be made. It is claimed that the cost of the insulating compound is very low, being about 3 per cent. of that of the rubber compounds. It is claimed to be acid and waterproof, and easily manipulated, while the materials of which it is composed are known to have withstood the ravages of time for over 150 years. In its various forms the compound is applicable to a large number of purposes in the electrical arts.

THERE has been added to the already extensive rubber works of I. Frankenburg (Manchester), a five story building, 104×54 feet, for the cable manufacturing department.

THE INDIA-RUBBER INDUSTRY IN GREAT BRITAIN.

By Our Regular Correspondent.

THE present is the time when the various railway companies invite tenders for the supply of their requisites in rubber goods for the forthcoming year. The tender forms may or may not state that Pará rubber only is to be used; since, however, the means at the companies' disposal to enable them to say whether the samples submitted contain no other rubber than Pará are in the present state of our knowledge quite inadequate, it would seem best to specify certain tests to which only a good rubber can conform. Though there may be no reason to imagine that there is a single railway where the competitors have not an equal chance of obtaining contracts, yet one often hears remarks in the trade as to the relations between certain railways and particular rubber firms. In the case of one of the most important companies, however, no suspicion of unfair dealing can possibly attach, as the samples received from various rubber works have their labels removed and are then submitted to severe mechanical tests, the one proving the most satisfactory being bought, price being a secondary consideration. There are few of the British rubber firms who do not enter into competition for these orders, and it is rather invidious to mention names, but to select one or two who have a special name for railway work, there are George Spencer Moulton & Co., of Bradford-on-Avon; The Avon India Rubber Co., of Melksham; Charles Macintosh & Co., Limited, David Moseley & Sons, and The Irwell Rubber Co., in England, while in Scotland mention may be made of the North British Rubber Co., Limited, at Edinburgh, and the Clyde Rubber Co., of Glasgow.

RAILWAY RUBBER SUPPLIES.

ALTHOUGH new rubber works have been established on the continent this year, there is nothing of any moment in this direction to report of the United Kingdom, a small works at Dunfermline, in Scotland, being the only development to be recorded. Ireland still remains without a rubber works, and, owing to the contiguity of the sister kingdom, the position is not likely to be changed. In Wales there is but one small works—that of the South Wales Rubber and Brattice Cloth Co., at Newport, making mechanical rubbers, but more particularly brattice cloth, which is an oil product used in the mechanical ventilation of collieries.—It is reported that a new rubber factory is about to commence work in the environs of Paris, and the manufacture will be mostly concerned with waterproof garments. The principal firm in this line near Paris is Maurel et Fils, of Boulogne-sur-Seine, whose goods were referred to by THE INDIA RUBBER WORLD'S special correspondent at the Paris Exposition, and from what we know of this firm's business the new concern will have to be energetic if it is to succeed in deposing Maurel's from their present position.

NEW RUBBER WORKS.

THE increase in popularity of football of late years among the proletariat has made the football bladder business one of quite imposing dimensions. There are merchants in London who give out orders for three or more tons at a time, and, as may be imagined, the competition in the trade is very keen. These goods are either of red or grey rubber and, as elasticity is an important point, a good quality of rubber is necessary. Whether the keenness of the competition tends to the production of a superior quality of rubber is a point in which there is unfortunately not much room for doubt, as the lowest priced goods seem to have an irresistible attraction for the merchant. At the prices paid it would be impossible to use "all Pará," and perhaps there is no need to go so far as this, but, seeing the conditions to which the balls are subjected, it is obvious that "substitute" must be used with a sparing hand, if at all. It may be mentioned that in some cases, where complaints have been made as to the premature decay of the rubber, the damage was evidently due to the leather, the grease from which had permeated the rubber. The merchants who buy these rubber bladders either make them up into balls ready for use, or else sell them to the sporting outfitters which retail establishments, frequently kept by professional cricketers, are to be found in the majority of the towns. This business of football bladders is not confined to particular firms, a good many having made an attempt to secure the contracts. Some years ago the question of sulphuring up became rather prominent, both in the red and gray goods, and, if my memory serves me right, the Silvertown company rather scored over their opponents of the day by reason of the freedom from this defect which characterized their goods.

FOOTBALL BLADDERS.

IN Great Britain the rubber works come under the Factory acts, their inspection with regard to the carbon bisulphide regulations being carried out by the factory sub-inspectors. The inspectors under the Alkali acts, however, have by recent legislation to keep an eye upon the manufacture of two substances which are largely, if not mostly, made for use in the rubber trade, and therefore it will not be out of place to say a word or two with respect to the report of the chief alkali inspector, R. Forbes Carpenter, for 1899, and which has recently been issued as a parliamentary blue book. Leaving out of account caustic soda, the two bodies of which special mention is made are bisulphide of carbon and sulphide of antimony, the attention of the inspectors in each case having been drawn to the escape of noxious sulphur gases into the atmosphere surrounding the respective works. There are at the present time seven bisulphide of carbon works dotted about the country, and three antimony sulphide works, or, more correctly speaking, three works where this chemical is one of the products, all three works being situated in the vicinity of London.

THE ALKALI ACTS.

A MACHINE which has been recently patented by Thomas Rowley, of 41, Corporation street, Manchester, and Robert Walmsley, is an improvement on the double spreading machine of the latter which was brought out some years ago, the patent for which is now the property of Charles Macintosh & Co. To mention the salient features of the new machine, there are four spreading rollers—two at each end—the object being to spread from each end so as to save the labor involved in unrolling and carrying round the piece to the original spreading gage. A novel feature is also a calendering arrangement by which the proofed cloth is compressed at once on passing over the steam chest, this improvement rendering it possible to employ less dough to get as good and perfect a proof as in the case of the ordinary machine. The saving thus effected is, I understand, a considerable one, and should be the chief recommendation for the machine. The saving in labor is also considerable, one man being able to turn out the

NEW SPREADING MACHINE.

same amount of work as that of three if not four machines of the old type, attended by as many men. The capacity of the new machine is stated to be 100 pieces of 80 yards length per week, and the gearing is so arranged that two men can, if desired, work separate pieces from each end. A rather important point as to cost, and in which it compares very favorably with the last machine of the sort brought out, is that old spreading machines of the ordinary type can be utilized in the construction of the new one, the spreading rollers and gages, steam-chests, etc., being identical in each case; or, at any rate, they can be utilized so as to dispense with the sinking of much new capital. The new machine has in the last few months been going through a period of probation in a large factory where it is understood to have fully borne out the claims of its inventors, both of whom have had a long experience of the trade, Walmsley having been for many years actually engaged in spreading work at one of the large factories in the Manchester district.

ARGUMENT from analogy alone is recognized to be a rather dubious proceeding, but there are cases where it may legitimately be resorted to. I feel no compunction, therefore, in referring to an old theme—the defunct "rubber combine"—in the light of the results of recent combinations in other branches of trade. Several of these combinations have been effected in the textile industries of the north of England, but, with the exception of the Fine Cotton Spinners, it has to be recorded that none of them have borne out the expectations of the shareholders who relied implicitly on the statements in the respective prospectuses. The calico printers combine seems to be in anything but a good way, the £1 shares being at 14 shillings and likely to be much lower. Some of the works belonging to the concern are being closed for lack of work, while the few works which remained outside are full of orders. In the case of the bleachers' combine, the ordinary shares were not applied for in anything like the amount expected, and no issue has been made of this class of share to the public, the promoters of the scheme having taken them up themselves. There can be little doubt that if the rubber combine had been brought out without the few important firms who had decided against joining it, we should have witnessed a similar position of affairs, as has just been mentioned as existing in the case of the calico printers. No doubt some of the smaller concerns would have been only too glad to get out of their businesses at a profit, but the older established and more prosperous firms did not quite see that a corresponding advantage would accrue to them if they entered into the project. Although one still hears rumors of a revival of the scheme, I do not think that there is the slightest probability of it ever coming off, more especially since the comparative failure of the various other flotations was on somewhat the same lines in the textile industry.

TRADE COMBINATIONS.

MUCH interest is being evinced in the introduction of the new machinery into the Birmingham works for vulcanizing tires at a high temperature in the space of a few minutes, but things have not yet got to the pass that anything definite can be said as to the likelihood of failure or success. Certainly there are not wanting those who look upon the project with the deepest mistrust. In the case of highly compounded rubbers, such as stamp rubber, these sceptics say the innovation may prove of utility, but the case is different when the amount of organic matter present preponderates largely over the mineral. In this case the danger of premature decay from overheating will be ever present, and must inevitably be a source of continued anxiety even if close attention to detail serves to prevent heavy loss from defective work. Against this dismal prognostication, it may be mentioned that a prominent firm has for some time past been curing tires in twenty minutes at a temperature considerably above 280° F., and with, it is reported, most satisfactory results; so although the cases are not identical, the outsider may reasonably keep an open mind on the subject until some facts concerning the Birmingham movement are available.

HIGH TEMPERATURE VULCANIZATION.

DESPITE its adoption by one or two firms and its laudation in influential quarters, it may be mentioned that a considerable difference of opinion still exists as to the advantage of using the vacuum chamber in rubber drying. The advocates of the chamber say that it prevents any oxidation of the rubber during drying, while, on the other hand, there are others who arguing from Graham's researches into the passage of different gases through rubber, aver that directly the chamber is opened and the air enters, the oxygen will rush into the pores of the rubber and be absorbed while the inert nitrogen lags behind. There is something plausible enough about this, though we must remember that the case is not identical with the passage of oxygen and nitrogen through rubber balloons—the means which Graham adopted to establish his conclusions. Whatever the result of the chamber drying may be, chemically, I imagine that the chief cause which will continue to militate against the general adoption of the process is that of first cost, this being very high in comparison with the ordinary method of drying in a warm room.

DRYING WASHED RUBBER.

THIS is the season when the waterproofing firms place their contracts for solvent naphtha for the ensuing year. The prices paid vary a good deal from year to year, according to the state of affairs in the tar distillation trade. Throughout this year the prices of tar products generally, with the exception of carbolic acid used in the lyddite manufacture, have been low, but now there is an upward tendency. A farther point is the ratio of the demand to the supply because only a certain quantity of solvent naphtha is distilled and any suddenly increased demand would tend to raise prices. One firm told me the other day that they always found it advantageous to contract earlier in the year, and this year, at any rate, they will have been gainers by following out their usual plan. The Scotch shale spirit does not make any headway with English waterproofers, nor does the American petroleum spirit, though for other purposes the latter is in increasing demand.

NAPHTHA CONTRACTS.

THE Victoria Rubber Co., of Edinburgh, have recently patented and commenced to manufacture shoes with a welt, the sole being now stitched on. I have not seen any of the new productions, but those who have seem to think that the company have got hold of a good thing. This company do a large business in this class of goods, though they do not come anywhere near their neighbors, the North British Rubber Co., who are by far the largest British manufacturers. Nor do the latter approximate, as regards output to the Russian-American India Rubber Co., of St. Petersburg, whose daily total reaches the stupendous figure of 50,000 pairs. From what I hear, the British firms have not such a good name as the Russians for the polish on the rubber, the exact means by which the varnish is made and applied in Russia being a trade secret, which is rather jealously guarded, and one, moreover, to the discovery of which analysis of the finished goods gives but little assistance.

RUBBER FOOTWEAR.

SIXTY-SEVEN commercial travelers in the rubber goods trade were licensed in Switzerland last year.

RUBBER PLANTING AND EXPLOITATION.

RUBBER REGULATIONS FOR THE PHILIPPINES.

WE have received from Manila a pamphlet containing "General Orders No. 92," issued by the United States military governor in the Philippine islands, (June 27, 1900), regulating the cutting of timber on the public domain and the gathering of forest produce. It is interesting to note that it includes regulations in regard to India-rubber and Gutta-percha, which have been condensed in the paragraphs following;

Licenses for harvesting these products will be granted for a period of one year. Applications for licenses must be made to the chief forestry official of the forest district or section, or to the district commander, who shall forward the same with his recommendations to the office of the military governor at Manila, who alone has power to grant licenses. No charge will be made for licenses, or for the required authentication of manifests of Caoutchouc or Gutta-percha removed from the country. But concessioners shall pay to the government 10 per cent. of the value of the produce, determined by the market price at Manila at the time of inspection.

The felling of the trees without permission is absolutely prohibited.

Extraction of the products shall be performed by making incisions with a very sharp instrument, penetrating the bark and the first layers of wood, cut horizontally and 25 centimeters in length, at least 25 centimeters above the ground. In the case of trees more than 40 centimeters in diameter, four incisions may be made, on opposite sides. When the flow of juices is obstructed, the concessioner will be permitted to recut the outer edge of the incision, or to extend it, except during the period between the flowering of the tree and the ripening of its fruit. The width of the cuttings shall never exceed 8 centimeters.

A metal or wooden plate may be placed at the lower part of the incision, to collect the juice. A vessel may be placed under the incision at the foot of the tree. The product may be stored in any convenient place, formal notice of which has been given to the authorities.

A manifest shall accompany the produce when transported from one place to another, stating its class and weight, and properly authenticated. Penalties are prescribed for the making of false manifests.

The Caoutchouc and Gutta-percha trees have as yet been imperfectly identified. The "general order" refers to eight different trees, the common names of which are given below, together with the botanical names so far as determined:

Anocep—*Palaquium* sp.
Balete—*Urostigma* sp.
Malapatud—*Palaquium* sp.
Palacpalac—*Palaquium latifolia.*
Tanguisan—*Ficus* sp.
Tanguisan baguio—*Ficus* sp.
Tanguisan Bayaba—*Ficus cuneata.*
Tabig—*Ficus heterophylla.*

The genus *Palaquium* (known also as *Isonandra* and *Dichopsis*) is that to which the chief Gutta-percha producing trees of the East Indies belong, but *P. latifolia*, named above, is not one of the more valuable sorts. The *Urostigma* and *Ficus* species are rubber producing trees.

The following statement has found wide currency in the newspapers of the United States: "On the recommendation of the war department, the agricultural department is preparing an order setting apart as forest reserves the island of Rombolin, north of the island of Panay; also the island of Pauitaui, which is one of the extreme group of the Jolo islands. Officers of the army who have been looking over the islands have found that these are perhaps the richest in the world, and it is the intention of the Washington authorities to have the trees preserved and cared for, especially as some fears lately have been expressed that the rubber supply may become exhausted."

Respecting this report, THE INDIA RUBBER WORLD has been informed at Washington that the only action taken by the United States government in this matter, so far as known there, is shown by the orders of the military governor at Manila, quoted above. At the department of agriculture the newspaper report was also pronounced incorrect. THE INDIA RUBBER WORLD will be in a position, however, as speedily as any facts respecting rubber in the Philippines are developed, to report the same.

RUBBER PLANTING IN SUMATRA.

THE daily *Straits Times*, of Singapore, reported lately: "Gutta [rubber?] plantations have largely been started on the east coast of Sumatra. The Russian-American India-rubber Co., have just begun operations there. The Tanah Priok Plantation Co. now follows suit. It proposes to grow rubber on a scale sufficient to admit of 240,000 trees being available in seven years time. Rubber grows wild in large quantities in East Sumatra."

In answer to an inquiry addressed to the St. Petersburg company, the following letter has been received from its president, dated in Prussia:

TO THE INDIA RUBBER WORLD—*Gentlemen:* The Russian-American India rubber Co., of St. Petersburg, Russia, has sent me your favor of August 20, because it is not my company but myself who is going to make a trial on a large scale with *Ficus elastica* plantations in Sumatra, east coast.

As all experiences are to be made, I am sorry not to be able to give you any further informations for the moment, except that there will be planted about 60,000 trees per annum, beginning from this year.

I remain, gentlemen, very truly yours, FRED. KRAUSKOPF,
President Russian-American India-rubber Co.

Villa Hohenbuchan, bei Schlangenbad, Wiesbaden, September 18, 1900.

RUBBER IN THE HAWAIIAN ISLANDS.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Rubber trees do grow wild in the Hawaiian islands, but are not considered of any commercial value. Two trees are growing in the grounds of the hotel in Honolulu whence this letter is written. But the people here are so isolated from every country in which rubber is collected for commerce that it does not follow that their judgment is correct as to the value of the species here. When so much money can be made with so little effort in the cultivation of sugar, coffee, and rice, the people here have been disposed to laugh at the idea of profits from rubber—with a small annual yield per tree and the years of time required for a planted tree to mature. However, the leading newspapers are beginning to devote much space to the subject of rubber planting.

The commissioner of agriculture and forestry informs me that the Oloa Sugar Co. are setting apart 50 acres for an experimental plantation of *Castilloa elastica*. He informs me also

that seeds are now on the way here for an experimental station to be established by the department of agriculture at Washington for the cultivation of rubber. W. W. B.

Honolulu, September 14, 1900.

FRENCH ENTERPRISE UP THE AMAZON.

IN regard to the interests in South America of the Comptoir Colonial Français, a French company having a capital of 9,000,000 francs, *La Gazette Coloniale* (Brussels) contains these statements: The company's work is carried on through two branches in Brazil and one in Peru, where are located immense properties in concessions of rubber forests and a network of factories [trading posts.] These properties are located on the rivers Javary, Curuça, and Itecuahy, navigable all the year, and embrace 500,000 hectares (=1,235,000 acres) of land, divided into 40 *seringales*, on which about 3000 *estradas* of 100 to 150 rubber trees have actually been opened. About 1000 workers are now employed in gathering rubber. The quantity of rubber gathered on the company's concessions last season amounted to 652,907 pounds, representing a value in Europe of 2,750,000 francs (=$550,000). But for the inundations which interrupted operations last season, it is believed that the crop would have been much larger. The news received lately in regard to the present crop is much more favorable, and a larger yield is expected. The first shipments, by the way, are already *en route*. The systematic opening of new *estradas* each season, according to the program of the Comptoir, points to a regular increase of production, which, in the course of a few years, is expected to exceed 1000 metric tons. The director in Brazil, H. W. Yorke, has lately returned to the Amazon from Europe, and is actively engaged in extending the scope of the company's work. Many of the initial difficulties in this new field have been overcome. Better relations are being formed with the native populations, and the recruiting of laborers takes place under more satisfactory conditions than formerly. The Comptoir possesses in the Amazon basin an equipment in the way of boats which greatly facilitates its work.

	POUNDS.
Fine Pará	341,411
Medium	36,277
Coarse	113,647
Cauchɔ balls	64,893
Caucho slabs	96,879

"L'Albuna" is the name of a company organized lately in Belgium, with a capital of 1,350,000 francs (=$270,000), to acquire an estate on the rio Albuna, an affluent of the upper Amazon, and exploit India-rubber and other products.

FROM A FRENCH HORTICULTURIST.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I have read in your instructive journal several times references to the extraction of rubber by pressure from young *Castilloa elastica* plants. I do not know what this means. I have twice sent one of my agents to America for the purpose of studying the extraction of rubber from the leaves of plants, but gained little information thereby. I believe that this is something to be developed in the remote future, if ever.

But the extraction of rubber from the barks of trees I consider more practicable. I have been successful, it is true, with only one American species, *Hancornia speciosa*, or "mangabeira" rubber, which is the easiest of all sorts to try by my process. Its bark is very friable, like sugar, so that it is easily disintegrated. *Ficus* sorts from the Guianas give rubber, but in small quantity. How many species there may be that I have overlooked I am unable to say. But, curious to say, I could do nothing with *Hevea or Castilloa*, though these are precisely the species in which my agent was interested.

Forsteronia gracilis, of British Guiana, is a member of the same family as *Landolphia*, *Vahea*, *Urceola*, etc., which proves its richness in rubber, and it should be susceptible to treatment of the bark for rubber. What a beautiful climber, by the way, is this *Forsteronia!* My agent brought home only stems without any roots, but after six weeks I had stems 2½ yards high.

Success ought to be attained in tropical America with the *Landolphia Heudelotii*, which thrives in a sandy soil as well as loam, and yields a good rubber. *Landolphia Owariensis*, *L. Klanei*, and *L. Kirkii* want more water and shade. These and various other creepers or climbers producing rubber ought to be grown in America with more profit than anywhere else, as experience will prove. They are easily propagated by cuttings and can be utilized for rubber far earlier than any American species.

Can you tell me what is the plant from southern California, yielding a good rubber from stems which can be cut yearly like asparagus? I have several stems, which look like *Euphorbia*, but I believe these are composite.

A. GODEFROY-LEBEUF.

Etablissement d'Horticulture, Paris, September 13, 1900.

THE ASSAM RUBBER PLANTATION.

THE interest shown by the government in India in the experimental plantation of rubber (*Ficus elastica*) started at Charduar in 1873, has been intermittent, and never long sustained. Doubtless for this reason the results attained have been much less satisfactory than if the work had been prosecuted without interruption under intelligent direction. Now, however, there appears to be a revival of interest in the matter. As already reported in THE INDIA RUBBER WORLD, 3023 pounds of rubber collected last year from the older trees fetched in London 3*s.* 4*d.* (=81 cents) per pound, which is a good price for Assam rubber. It has now been decided to extend the plantation by 1000 acres within the next five years. A writer in the *Pioneer*, a Perak newspaper, throws some light on the unsatisfactory results from some of the planting done at Charduar: "The fact was that the planting had been badly done. The establishment of new nurseries had been neglected, and instead of providing a proper continuity of healthy young nursery plants, the undersized and suppressed specimens from the old nurseries were used." The moral is that unless new nurseries are formed every year, good planting material will not be forthcoming.

RUBBER PLANTING IN THE FAR EAST.

AN official report on planting in Perak, in the Malay States, says that "a portion of nearly all estates owned by Europeans is now being planted with trees producing rubber. The variety usually cultivated is Pará (*Hevea Brasiliensis*), but considerable numbers of rambong trees (*Ficus elastica*) are also being planted and, having regard to the insect and other pests which almost invariably attack exotic plants with special virulence, it is not unlikely that rambong, a hardy indigenous tree, will eventually be preferred to Pará, a tree imported from Brazil."

J. P. William & Brother, of Henaratgoda, Ceylon, advised THE INDIA RUBBER WORLD at the beginning of the season for supplying Pará rubber seeds—August and September—that they would have 1.000,000 available, at £4 (=$20) per 1000. They had also 1,000,000 plants available, for which orders would be booked for delivery all the year round. They state that their shipments of Pará rubber plants last year, to different countries, exceeded 300,000.

The *Tropical Agriculturist* for September reports the sale of cultivated Pará rubber, grown on the Culloden estate, in the district of Kalutara, Ceylon, at 3*s.* 7¾*d.* per pound.

M. Achard, the director of agriculture for Cochin China, according to the *Bulletin Economique de l'Indo-Chine*, has found on the Trà-sù mountain a *Castillo elastica* tree planted in 1892. The sandy soil of that region seems little suited to its growth.

INDIA-RUBBER GOODS IN COMMERCE.

AMERICAN RUBBER GOODS EXPORTS.

THE returns are now available of the exports under the heading of "Manufactures of India-Rubber" from the United States for eight months of the current year, as classified by the customs service, the values under each heading being as follows:

MONTHS.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
Jan.-June....	$262,761	$198,022	$751,171	$1,211,954
July.....	54,965	53,503	110,456	218,924
August.....	42,114	98,761	139,212	280,087
Total.....	$359,840	$350,286	$1,000,839	$1,710,965

Similar exports for January-August, 1899, reached a total value of only $1,304,498, the rate of increase being 31.1 per cent. The exports of rubber shoes during the eight months amounted to 647,770 pairs, against 330,120 pairs during the same period of 1899—an increase of 96.2 per cent.

Exports of American rubber goods to the islands named below, during July and August, amounted in value as follows:

ISLANDS.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
Cuba.....	$5,973	$571	$4,186	$10,730
Porto Rico....	142	70	1,263	1,475
Philippines...	338	....	2,314	2,652
Total.....	$6,453	$641	$7,763	$14,857

The value of exports of reclaimed rubber during the months of January to August inclusive has been as follows:

1898.	1899.	1900.
$182,460	$285,817	$373,605

WHERE AMERICAN RUBBER GOODS GO.

EXPORTS from New York, during the four weeks ended October 2, 1900, classed as "India-rubber goods," amounted in value and were consigned as follows:

Great Britain..	$35,269	Central Amer.	433	Dutch Guiana.	106
Germany.....	13,071	Cuba.....	5,641	Ecuador.....	49
France.....	454	Porto Rico....	331	Venezuela....	115
Holland.....	307	British W. Ind.	367	Australia.....	18,472
Belgium.....	470	Dutch W. Ind.	12	New Zealand..	1,031
Denmark.....	626	San Domingo.	28	Japan.....	1,612
Sweden.....	135	Haiti.....	47	Philippines....	102
Austria.....	567	Argentina....	382	British E. Ind.	438
Italy.....	149	Brazil.....	1,135	British Africa.	3,488
Russia.....	482	Br. Guiana....	190	Other Africa..	1,121
Turkey.....	767	Bolivia.....	27		
Azores.....	102	Chile.....	430	Total....$94,665	
Mexico.....	5,874	Colombia.....	835		

During the thirteen weeks ending on the above date such exports from New York reached $350,597, against $220,916 for the same period of last year. Other exports to be considered for the four weeks mentioned above were:

Dress Shields.—To Liverpool $587; Southampton $5212; Antwerp $1546; Hamburg $2336; Vienna $650; Australia $68—total $10,399.

India-rubber Thread.—To Barmen $918; Furth $1395; Genoa $1810; Havre $5095; Marseilles $225; Milan $6636; Rotterdam $276; Schoenenwerd $1898—total $18,053.

Clothes Wringers.—To all ports $9922.

India-rubber Cement.—To sundry ports $274.

Rubber Boots and Shoes.—To Copenhagen $1255.

India-rubber Scrap.—To Liverpool $6212; Glasgow $509; Hull $1811; Hamburg $5050; Havre $1388—total $14,970.

Electric Cables.—To Glasgow $14,085—besides other important shipments of electrical materials.

BOSTON RUBBER SHOE EXPORTS FOR SEPTEMBER.

	Pairs.	Value.	Value. 1899.
To England.....	33,819	$16,160	$7,019
To France.....	31,084	14,430	....
To Scotland.....	8,324	4,220	1,140
To Germany.....	1,908	910	110
To Newfoundland.....	1,885	930	318
To Belgium.....	5,364	2,140	....
To Miquelon.....	237	605	705
To Nova Scotia.....	229	303	1,249
To Turkey.....	216	115	....
To Denmark.....	....	....	1,216
To British West Indies.....	1	4	....
Total.....	83,063	$36,817	$11,757

AMERICAN IMPORTS.

THE value of imports into the United States of the goods described below, during the first eight months of the year, has increased very materially since 1898, as follows:

	1898.	1899.	1900.
India-rubber goods.....	$218,066	$289,708	$385,767
Gutta-percha goods.....	89,955	92,858	200,561
Total Imports.....	$308,021	$382,566	$586,328
Reëxports.....	71,988	54,869	9,031
Net Imports.....	$236,013	$327,697	$577,297

CANADIAN IMPORTS OF RUBBER GOODS.

THE imports of merchandise into Canada during July, 1900, classified as India-rubber and Gutta-percha goods, amounted in value as follows:

	From United States.	From Other Countries.	Total.
Boots and Shoes.....	$ 644	$....	$ 644
Belting.....	2,225	60	2,285
Clothing.....	4,475	7,214	11,689
Hose.....	3,138	61	3,199
Packing, Matting, and Mats.....	2,750	5	2,755
Sheeting.....	....	31	31
All Other.....	13,728	5,768	19,491
Total.....	$26,960	$13,134	$40,094

BRITISH EXPORTS OF RUBBER GOODS.

EXPORTS for the first nine months of each year, as officially stated, have been in value as follows:

In 1898.....	£ 972,720	=$4,863,600
In 1899.....	1,024,972	= 5,124,860
In 1900.....	1,073,876	= 5,369,380

NOVEL PIECE OF RUBBER FOOTWEAR.

AN unusual order received recently by the Wales-Goodyear Rubber Shoe Co. was from an English mining engineer, who had one leg much shorter than the other, and the right heel was drawn up so that the toe pointed sharply downwards, The knee was rigid and encased in iron supports, preventing any bending of the leg or foot, such as is necessary for the ordinary man in putting on a boot. The problem was to build a sporting boot which the engineer could wear over his leather shoe. A more difficult fit could hardly be asked. A lacing feature had to be introduced into the boot, but when the job was done the Englishman had as fine a fit as could be asked and a thoroughly waterproof boot besides.

WHAT IS THE TRUTH ABOUT CHIAPAS?

THE Chiapas Rubber Plantation and Investment Co., of San Francisco and Mexico, was the subject of some damaging charges recently in the San Francisco *Chronicle*, as reported in the last INDIA RUBBER WORLD. The *Chronicle* has reiterated its charges that the company's properties in Mexico are not suited for rubber cultivation, and that no rubber has been planted on them, although the company has been selling its stock to the public for two years.

The *Mexican Herald* of September 28 reported the arrival in Mexico city of a committee of Californian shareholders in the Chiapas company, returning from a visit to the plantation. They expressed themselves as pleased with all that they had seen, and one member said: "There are many wild rubber trees on the land . . . . There are about 300,000 young trees in the nurseries which will be transplanted this year at the proper time, but it is proposed to stock the plantation principally from the seed, planted just where the tree will grow, without first placing in a nursery." Three days later, when the San Francisco newspaper, with its charges, had reached Mexico, the committee told the *Herald's* reporter that its statements deserved no answer, being based upon the talk of a disgruntled stockholder—George S. Montgomery, who was, until very recently, the company's second vice president, though his name has now been dropped from the list of officers.

The Los Angeles (Cal.) *Times*, of September 25, quotes J. S. Cannon, managing director of the Los Angeles Rubber Plantation Co., but said not to be connected with the Chiapas company, as saying that a great injustice had been done to the latter company by the San Francisco paper. More recently at a public meeting in Los Angeles, some citizens of that place who had gone to Chiapas as a committee on investigation, strongly denounced Montgomery, while upholding Ellsworth.

The following letter has been received from the Chiapas company's headquarters. It will be noticed that it refers to THE INDIA RUBBER WORLD as having defended the company. Really, this paper has no interest in the matter, beyond putting on record whatever bears upon the general question of rubber planting. The charges made by the San Francisco *Chronicle* seemed to be of a character to merit notice, and in the same connection we printed what the company had to say in its defense. The letter reads:

TO THE EDITOR OF THE INDIA RUBBER WORLD: I have just read in the current number of your paper your answer to the vicious personal attacks made on our managing director [J. W. Ellsworth] in the San Francisco *Chronicle*. Of course you understand that this is the attack of a bitter enemy, made with the intention of ruining Mr. Ellsworth and the company. The thing was so thoroughly overdone as to utterly lose its effect. None of the city papers except the *Chronicle* has published a single line. The fact is that the article itself has all the ear marks of a paid article, and the animus of the writer shows through it plainly. I wish to express my thanks to you for the kind words you have spoken. The attack came out while Mr. Ellsworth and myself were away from the office investigating our plantation. There was also with us a strong, wisely conservative committee of shareholders. I am enclosing herewith this committee's printed reports. Our company is solid in every particular, and we have in it some of the best business men of San Francisco. Every representation that has been made by Mr. Ellsworth has been fully substantiated by the committee's visit. Again thanking you for your words, I am, very sincerely,

C. A. WESTENBERG,
Assistant Managing Director.

San Francisco, October 17, 1900.

The pamphlets referred to contain statements in regard to the fitness of the Chiapas properties for rubber cultivation, and the work now under way for forming plantations.

MR. FLINT ON "INDUSTRIALS."

THE pressure of multifarious business interests does not prevent Mr. Charles R. Flint, of New York, from making frequent contributions to the literature of what is called the "trust" question. He was the principal speaker at the annual dinner of the Illinois Manufacturers' Association, at Chicago, on "Chicago Day," October 9. He devoted his remarks to a sketch of the development of industrial combination and pointed out its advantages and its tendencies. The address, though of considerable length, appeared in many newspapers.

Under the heading "New Light on the Problems of Trusts," Mr. Flint contributed to the *American Monthly Review of Reviews* for October a review of an important new book on "The Trust Problem," by Professor Jeremiah Whipple Jenks, PH.D. Mr. Flint's concluding paragraph is worth repeating here, as summarizing his conclusions:

"The common stock of 'industrials' to-day occupies the same relation to industrial capitalization that the common stock of railroads occupied to railroad development. Most of the railroads were constructed for the amount of the original issue of bonds, and the common stock largely represented prospective value. Time put these stocks in the position of investment securities, and in the case of the well organized 'industrials' the same conditions will prevail; but at present, the public not feeling able to discriminate, good 'industrial' securities are sold at a price that shows from 15 to 30 per cent. on the present quotations, while railroad securities, having been tried by time, are selling on the basis of from 4 to 7 per cent., and many without any better guarantees for permanency of earnings than are possessed by the good 'industrials.'"

RUBBER INSULATION ON NAVAL VESSELS.

IN a paper on "The Electrical Equipment of Ships of War," read by C. E. Grove before the Institution of Electrical Engineers in London, it is stated, in connection with electric lighting: "Lead covered cables and wires, first introduced into the Japanese cruiser *Naniwa Kan*, built at Elswick, are universally used in our [the British] navy, and the insulation is now vulcanized India-rubber, in all cases."

"Where the wires go through water tight bulkheads or decks, of course the bulkheads and decks must be made watertight behind them. . . . A simple, compact, and effective method is as follows: Two pieces of wrought iron plate are drilled with holes slightly larger than the size of the cables that are to go through the bulkhead; similar blocks of India-rubber, about half an inch thick, have holes formed in them just the neat size of the cable; the bulkhead is drilled with clearing holes; a slab of rubber and an iron plate are placed on either side of the bulkhead, the cables are drawn through, and then the plates screwed up tight. By this means pressure is put upon the rubber, which tends to make the holes through which the cables pass smaller, so that the cables are griped, and the holes are left watertight. This arrangement was used by the author throughout the Japanese battleship *Fuji*, both for decks and bulkheads."

THE Dunlop tire company have obtained a favorable decision in a suit brought against an export house in Hamburg, which ordered bicycle tires for an Australian customer from the rubber factory at Milan, Italy. The goods were delivered in Hamburg for reshipment to Australia, and the court held that the Dunlop company were entitled to claim damages for infringement of their German patent.

AN OFFICIAL GOLF BALL?

FROM Chicago reports have come of an agitation for an official golf ball, which leads the Brooklyn *Eagle* to say: "Maybe it is simply the advertising dodge of some smart ball manufacturer, who would not object to having a United States Golf Association edict that all golfers must play with his particular sphere."

Doubtless there has been much unfounded enthusiasm on the part of players about their favorite golf balls, just as was true in the earlier days of cycling about particular makes of wheels. A dealer in golf goods was quoted in THE INDIA RUBBER WORLD last year as saying: "The golfing public get fooled sometimes, the same as other people. Here's a list of balls retailing all the way from $3.50 to $5 a dozen—all made of the same material and at the same factory, but marketed by different houses, each using a different trade mark. Not many golfers can select balls by their appearance, nor yet by their playing qualities."

John Reid, late president of the St. Andrew's Golf Club, of New York, said at one time in an interview in the New York *Sun*: "I am inclined to think that too much importance is attached to the size and markings of golf balls, by many players. Any golf ball that measures about 1⅝ inches in diameter, made by a first class firm, will satisfy me. The size markings, 27, 27½, and so forth, refer to pennyweights in the old balls made of leather, stuffed with feathers, used before Gutta-percha balls were invented. The size of the leather was about equal to the present 26 ball, I am told. One of the best amateurs I met in Scotland always told me to use a 28 ball, yet the famous Allan Robertson always used a 26 Gutta-percha. My son John, Jr., who stands high among the amateurs here, prefers a small ball, about 27. I have often seen men almost in tears because a supply of their favorite ball could not be had, but who, after being forced to start out with a new brand, have made the best score of their lives."

Said a recent visitor to THE INDIA RUBBER WORLD office who is an English golf enthusiast: "In my country the people are conservative by nature, and, having become accustomed to a particular golf ball or make of clubs, it is hard to get a player to make a change. It is really difficult to introduce a new make of goods, for this reason. If a new golf ball should be brought out, actually as good as any now in use but costing only one-fourth as much, it would be slow in getting a trial, simply because it was new. All of this, of course, doesn't prove that the balls which have been longest in the market and have become most widely known, are better than other and newer makes. I have seen some American golf clubs that cannot be equalled by the best makers in my own country, and I do not see why your people should not succeed as well in making balls as they have with clubs. Certainly the disposition of the American public to try new things ought to make it easier here than in England to bring out new brands."

From all the foregoing it would appear that probably there is no such thing as the *best* golf ball, and that the designation of an "official" ball would result simply in giving prominence to an article no better than many of its competitors. As the Brooklyn *Eagle* says, "a cast iron standard is only needed in sport in which two or more contestants have to use the same implements of play, the idea being to avoid any advantage that would accrue against one player if he were required to perform with the paraphernalia selected by his opponents." But in golf, each player selects his own ball.

"The West will continue its war over the matter, maybe," says the *Eagle*, "and the cause of the war is the new ball of almost pure rubber, that can be driven 'a hundred yards further than the ordinary Gutta-percha,' to quote one over enthusiastic authority. This ball has been seen here in the East, and no driving records have yet been broken, while on the putting green one might as well try to control the antics of a soap bubble in a two reef breeze, the affair being so lively that it prefers to bounce along rather than roll."

PACIFIC CABLE NOTES.

THE details of construction of the submarine cable recently manufactured in New York and shipped to the Philippines on the order of the government are given thus by *The Electrical World*:

"The deep sea cable taken consists of a conductor of seven No. 24 B. & S. wires of 98 per cent. conductivity, with an insulating layer of pure Pará 1-64 inch and a layer of compound not less than 40 per cent. Pará, bringing the diameter up to 8-32 inch; then a layer of best rubber cloth tape, double lap. This core is served with two layers of best Calcutta tarred jute, in reverse directions, and an armor of sixteen No. 12 B. & S. galvanized steel wire with not more than 10-inch lay. The outside finish is hot asphalt compound, a layer of Calcutta jute, hot asphalt, another jute layer in reverse, and hot asphalt. The shore ends are the same as the deep sea, except for additional armor over the first of sixteen No. 6 B. & S. galvanized steel wire, with the same outside finish. The core insulation was tested with 5000 volts alternating current for 5 minutes, submerged in water. The finished cable was tested with 1000 volts alternating for one minute between the core and the armor. After 24 hours' immersion the insulation had to measure at least 1000 megohms per mile at 60° F. The copper resistance at 60° F. was not to exceed 18.63 ohms per mile."

The Pacific Coast Steamship Co.'s steamer *Orizaba*, having on board a military cable manufactured for the United States by W. R. Brixey (New York) was wrecked on Rock Point reef, St. Michael Island, on September 20, becoming a toal loss. Lighters were at once employed to remove the cable, which work was completed by September 25, the cable being uninjured. George F. Porter, in charge of the cable, sent word home that he hoped to complete the laying of the cable before the winter set in. The *Orizaba's* master blames the charts of the United States hydrographic bureau.

The tenders submitted for the proposed all-British Pacific cable a few weeks ago are understood to have been considered by the committee having the matter in charge for the government so high that it was deemed inadvisable to award a contract. The doings of the committee are being jealously guarded from the public, but the *Electrical World* understands the matter to stand thus: "Tenders were received for the laying of the cable in response to an advertised invitation. These were considered and returned for amendment in some particulars. They have now been received back, and in a few days cablegrams will be sent to the Canadian and Australian governments announcing the acceptance of a certain tender, and the plans for the construction of the cable forthwith," Gutta-percha is the dielectric specified to be used.

From foreign sources comes the information that the lowest tender for the Pacific cable was that of the Telegraph Construction and Maintenance Co., Limited, who will undertake to do the work for £1,886,000 (=$9,440,000), within eighteen months from the date of contract. The British postmaster general is reported as saying that he would recommend the acceptance of the lowest tender.

NEW TRADE PUBLICATIONS.

EVERY dealer in druggists' sundries will count himself fortunate who receives a copy of the latest "Illustrated Price List of India-rubber Druggists' Sundries Manufactured by THE B. F. GOODRICH CO., Akron Rubber Works, Akron, Ohio." Its broad tinted pages are illustrated freely by means of photographic representations of a line of goods which embraces about every article included in the catalogues issued by other houses in this line, and some articles not included in any other. Some stationers' goods are given, dental dam, balls and toys, and numerous specialties. Here and there through the book are some pictures thrown in for ornament; by way of frontispiece is a good view of the Akron Rubber Works, and the cover is embellished with a picture in colors of a rubber plant. The prices of all the articles mentioned are given. [9"×11¾". 76 pages.]——A portion of the contents of this catalogue appears in a smaller publication, labelled "Rubber Toys and Sporting Goods," also attractively got up. [3½"×6¼". 16 pages.]

THE catalogues issued hitherto by THE SEAMLESS RUBBER CO. (New Haven, Conn.) have been referred to in THE INDIA RUBBER WORLD as excellent specimens of catalogue making, in regard to both their contents and their appearance. Their catalogue of fine rubber goods (soft and hard) for 1900–01, of which a copy has just been received, marks an advance over any publication brought out by the company in the past, no matter from what standpoint it is considered. There are sixty full page plates, illustrating in photogravures a much larger number of articles in rubber. Color printing has been employed to good effect in the representation of these goods, besides which a happy choice has been made a tinted background for the illustrations, and the border chosen for the pages throughout is handsome. The cover is embellished with views of rubber gathering and a view of the factories appears as a frontispiece. It is understood that the general design of the catalogue is due largely to the taste of the company's secretary, Mr. Ernest C. Auer. [9"×7". 127 pages.]

THE MILLTOWN INDIA RUBBER CO., (Milltown, New Jersey) have issued their first price list of rubber boots and shoes, under "Milltown" and "Crescent" brands, for the season of 1900–01. This is the company organized lately by John C. Evans, for thirty years identified with the rubber footwear industry, and the products of the new factory comprise a full line of staple goods and specialties. [3¼"×6." 16 pages.]

THE NORTH BRITISH RUBBER CO., LIMITED (The Castle Mills, Edinburgh), send us an illustrated catalogue and price list of their manufastures of rubber overshoes, boots, and canvas shoes. This factory is the largest producer of rubber footwear in the United Kingdom, and during forty years past its list has come to embrace a wide range of goods, suited both to every feature of the home demand, and also for the export trade, the total number of items being apparently as great as is included in any American catalogue. Boots and snowshoes come in for a large share of attention, felt lined goods appearing in many forms. Attention is called especially to the "Yankee" brand, brought out in answer to a demand for light footwear. There is a wide range in the company's tennis or canvas shoes, the colors including blue, gray, brown, white, and black. The catalogue is provided with blank spaces for filling in prices. [5½"×8¼". 30 pages.]

WE have received a new edition of "A Treatise on Artificial Limbs with Rubber Hands and Feet," with 800 illustrations, which forms the trade catalogue of the leading manufacturer in this line—A. A. MARKS, No. 701 Broadway, New York. It shows as a frontispiece a good portrait of A. A. Marks, the survivor of the two brothers who founded the business in 1853, and announces the award of a "Grand Prix" at the Paris Exposition of 1900. [5½"×9". 530 pages.]

BIRMINGHAM IRON FOUNDRY (Derby, Connecticut) have issued, between attractive covers, not a catalogue, but a series of page advertisements of the "Birmingham" rubber mill machinery, reproduced from THE INDIA RUBBER WORLD, the whole forming an interesting publication, and one which will serve to indicate the wide range of rubber mill equipment manufactured by this company.

WHITMAN & BARNES MANUFACTURING CO. (Akron, Ohio) send us a catalogue of their mechanical rubber goods, embracing a number of specialties in molded goods; also a catalogue of their "W. & B." rubber pad horseshoes, and another labeled "Rubber Bands," their production of the latter goods being quite extensive. [3½"×6". 12, 16, and 28 pages.]

ALSO RECEIVED.

B. F. STURTEVANT CO., Boston.=Illustrated Catalogue of the Sturtevant Steel Plate Planing Mill Exhausters. 40 pp. *Also:* The Sturtevant 4-Pole Motors and Generators. 4 pp.

Hodgman Rubber Co., New York.=[Circular on Bath Curtains.] 4 pp.

United States Pneumatic Horse Collar Co., No. 52 Broadway, New York=United States Pneumatic Horse Collar. 24 p.

Davidson Rubber Co., Boston, Massachusetts.=Just a Few Words on the Subject of Golf Balls. 4 pp.

Edison Manufacturing Co.—Thomas A. Edison, proprietor, No. 135 Fifth avenue, New York.=Catalogue of Edison Lalande Batteries; also, Edison Motors and Fan Outfits. 24 pp.

A. G. Spalding & Brothers, Inc., New York, Chicago, and Denver=Catalogue No. 102. Spalding's Fall and Winter Sports. Season 1900–01. 72 pp.

G. & J. Tire Co., Indianapolis, Indiana=G. & J. Automobile Tires. 8 pp.

Gleason-Peters Air Pump Co., New York=Automobile Tire Pumps. 22 pp.

Joseph Dixon Crucible Co., Jersey City, New Jersey=Graphite for Automobiles. 8 pp. Also: Dixon's Silica-Graphite Paint, for protection of steel construction work against corrosion. Folder.

Goodyear Rubber Co., St. Paul, Minnesota=A List of Witnesses in the Case of "Gold Seal" and "Goodyear Rubber Co." Brands of Rubber Boots and Shoes. [Testimonials from customers.] 32 pp.

"RUBBER FACTORY IN MEXICO."

UNDER this heading the New York *Commercial* of October 24 printed the following news from San Luis Potosi, Mexico: "A large rubber factory has just been completed in this city and placed in operation. A fine article of rubber is manufactured by this new concern from a swamp weed called catonche. This plant grows in greatest profusion throughout this part of Mexico, and it is claimed that rubber can be manufactured from it at comparatively small expense."

In THE INDIA RUBBER WORLD for July 1 appeared an account of the plans of the Mexican company, together with a description of the plant the gum from which is to be treated under a process patented by William Prampolini.

AT the fifteenth annual session of the Massachusetts state branch of the American Federation of Labor, at Marlboro, on October 2, the convention reiterated its position on the question of supporting the elastic goring weavers by favoring a movement to create a greater demand for congress shoes. The nature of the movement is not stated.

NOTES ON RUBBER INTERESTS IN EUROPE.

THE Vereinigte Gummiwaaren Fabriken, Harburg-Wien (Harburg a/d Elbe, Germany), have declared a dividend of 17½ per cent. from their earnings for the fiscal year ended July 1, against a dividend of 12 per cent. for the preceding year. Last month was printed in THE INDIA RUBBER WORLD the company's balance sheet for the business year 1898–99. The balance sheet for the year ending July 1, 1900, has since come to hand, being of the same general character in detail, but showing the net earnings to have been 1,336,631 marks, against 886,644 marks for the preceeding year.

=The German government has been arranging for submarine cable facilities for the German sphere of influence in China. There was shipped lately from the Felten & Guilleaume works at Mulheim-on-Rhine 293 miles of cable to connect Chifu, the Kangkungtau islands, and Tsingtau. Later Tsingtau and Shanghai are to be connected by 444 miles of cable lately ordered from the Nordenham works of the North German Submarine Cable Works.

=Henri Schapp, Paris, France, removed his office about October 15 from 16, rue Rossini to 13, rue de Marseille, where he continues the business of selling on commission all kinds of old rubber. He advises THE INDIA RUBBER WORLD of having made recently some important shipments to the United States.

=The Cablemakers' Association of Great Britain have sent out to the electrical engineering trades a circular, signed by eleven firms, agreeing upon a standardization of terms and specifications for future work, including standard sizes of conductors for electric supply mains.

=The directors of Thornton & Co., Limited, India-rubber manufacturers, of Edinburgh, Scotland, have declared a dividend of 10 per cent. on the ordinary shares, after allowing for the usual 5 per cent. on the preference shares and 4 per cent. on the debentures.

=The Russian-American India Rubber Co. (St. Petersburg) have favored THE INDIA RUBBER WORLD with two large photogravures, showing front and rear views of the pavilion occupied exclusively by their exhibit at the Paris exposition, of which mention was made in the correspondence published in our issue of September 1.

=Lee Brothers, manufacturers of waterproof goods, London, received at the Paris exposition a gold medal for their waterproof garments, and a silver medal for carriage aprons, air goods, etc.

=The Asbest- und Gummiwerke Alfred Calmon (Hamburg) have built a seven room portable house of Mr. Calmon's "asbestos slate" for Field Marshal Count von Waldersee, commander in chief of the allied forces in China, as a part of his military equipment for his use in the latter country.

=Anderson, Anderson & Anderson, Limited, of St. Paul's churchyard, London, who are exhibitors at the Paris Exposition, have been awarded a gold medal for waterproof garments, in Group 15; a silver medal for fishing boots, and a silver medal for athletic goods.

=The reason for laying the German-American cable from the New York side rather than in the opposite direction, although the cable was manufactured in Europe, is that the wind and current were thus more favorable.

=The India-Rubber, Gutta-Percha, and Telegraph Works Co., of Silvertown, London, received a gold medal for their display in the India-rubber and Gutta-percha class at the Paris Exposition, and a "Grand Prix" in the department of "Electrical Apparatus." In the latter department Siemens Brothers, Limited, also won a "Grand Prix."

RECENT RUBBER PATENTS.

UNITED STATES PATENT RECORD.

ISSUED SEPTEMBER 4, 1900.

NO. 657,240. Process of treating India-rubber, Gutta-percha, and their compositions. Eugen Hornung and Stefan Hansel, Vienna, Austria.

657,275. Pedal rubber. Frank T. Robinson, Chicago, assignor to Louis J. Kreller, same place.

657,277. Rubber sole. Frank W. Whitcher, Boston, assignor to Frank W. Whitcher & Co., same place.

657,431. Valve for pneumatic tires. J. Mead, New Windsor, Ill.

657,495. Tire. William H. Mitchell, Boston, assignor of one-half to Dudley H. Bradlee, Jr., Medford, Mass.

657,500. Manufacture of endless bands for rubber stamps. George A. Pickup, Baltimore, assignor to William A. Force, New York.

ISSUED SEPTEMBER 11, 1900.

657,718. Rubber pad horseshoe. Elmer A. Wilcox, Davenport, Iowa.

657,787–657,832. Rubber vehicle tire. Raymond B. Price, Chicago, assignor to the Calumet Tire Rubber Co., same place.

ISSUED SEPTEMBER 18, 1900.

658,179. Rubber dam clamp. James W. Ivory, Philadelphia.

658,221. Soft tread horseshoe. John Riley, New York.

ISSUED SEPTEMBER 25, 1900.

658,437. Waterproofing coating. Stefan Hansel and Eugen Hornung, Vienna, Austria, assignors to Bruder Hansel, Barn, Austria.

658,441. Rubber heel. Wendell E. Herbst, Hartford, Conn.

658,461. Vehicle tire. Ransom E. Olds, Lansing, Mich.

658,471. Vulcanizing press. Frank A. Seiberling, Akron, Ohio, and Alexander Straus, New York; said Straus assignor to the Goodyear Tire and Rubber Co.

658,586. Fire hose nozzle. Meinhard Reiling, Fort Wayne, Ind.

658,692. Hose coupling. Rufus Williams, Walla Walla, Washington.

658,712. Device for equipping vehicle wheels with rubber tires. Arthur W. Grant, Springfield, Ohio, assignor by mesne assignments to the Consolidated Rubber Tire Co.

658,713. Device for applying rubber tires to vehicle wheels. *Same.*

TRADE MARKS.

35,043. Elastic goring for boots and shoes. Glendale Elastic Fabrics Co., Easthampton and Boston, Mass. Essential feature, the word "Rival."

35,095. Rubber belting, gaskets, hose, and packing. Peerless Rubber Manufacturing Co., New York.

OMITTED FROM ISSUES FOR JULY 10.

653,242. Apparatus for placing lining in openings in plastic material. Albert T. Holt, Akron, Ohio.

ENGLISH PATENT RECORD.

APPLICATIONS.—1900.

14,849. Ernest Large, 11, St. Mary's row, Birmingham. Improved pneumatic tire for cycles and other vehicles. August 20.

14,986. William Lawrence Livermore, 17, Didsbury road, Stockport. Improved method of attaching India-rubber tires to the wheels of cycles, bath chairs, and other vehicles. August 22.

14,987. *Same.* Improvement in the construction of pneumatic tires for the wheels of cycles and the like. August 22.

15,079. Richard Parry, 6, Lord street, Liverpool. Improvements in or relating to pneumatic tires. August 23.

15,083. Luigi Way, 55, Chancery lane, London. Improved stop valve for pneumatic tires and the like. August 23.

15,094. Herbert Bingham, 111, Hatton garden, London. Improvements in pneumatic tires. August 23.

15,142. Joseph Watson, 94, Tennant street, Birmingham. Improvements in pneumatic tires for wheels of bicycles and other carriages. August 25.

15,219. Thomas Perkes, 96, High street, Eton, Bucks. Improvements in rubber tires for wheels. August 27.

15,221. Alfred Hopton, 124, Euston road, London. Improved method of fitting rubber tires. August 27.

15,405. Peter Bichler, 6, Lord street, Liverpool. Improvements in rubber soles and heels for boots and shoes. August 29.

15,471. Christian Hamilton Gray, 111, Hatton garden, London. Improvements in the manufacture of pneumatic tires. August 30.

15,530. Thomas Richards, 37, Chancery lane, London. Improvements in pneumatic tires. August 31.

15,535. Edwin Fairhurst and Colin George Downie, 6, Lord street, Liverpool. Improvements in tires for cycles. August 31.

15,624. Ernest Curnock, 8, Quality court, Chancery lane, London. Improvements in the construction of wheels of vehicles and method of securing the tires of same. September 3.

15,686. Diogo Frank de Souza, 7, Waterloo place, Pall Mall, London. A non-puncturable pneumatic tire for bicycles, motors, and the like. September 4.

15,791. Richard Green, 128, Colmore row, Birmingham. Improvements in pneumatic tires. September 5.

15,855. Joseph Von Miniszewski and Theodor Printz, 77, Kriegstrasse, Karlsruhe, Baden, Germany. Means of constructing an endless smooth air tube without joinings for pneumatic tires. September 6.

15,891. Joshua Fielden, 2, Market street, Bradford. Improvements in pneumatic tires. September 7.

16,014. Patrick Millar Matthew, Victoria India Rubber Mills, Edinburgh. Improved method of attaching India-rubber and leather soles to boots and shoes. September 8.

16,100. John Fitzpatrick, 100, Wellington street, Glasgow. Improved arrangement for inflating the pneumatic tires of self propelled road carriages. September 11.

16,112. Alexander Black, 32, St. James street, Paisley road, Glasgow. Improvements in pneumatic tires for cycles and other vehicles. September 11.

16,116. Ben Broughton, Hamilton, Ontario. Improvements in tires for bicycles and the like. September 11.

16,191. Rudolph De Cordova, 2, Pump court, Middle Temple, London. Improvements in tires. September 12.

16,266. George Vernon Hutton, 7, Nicholas street, Manchester. Rubber cushions to be used in the binding of account and other books. September 13.

16,485. Michael F. Meisch, 45, Southampton buildings, Chancery lane, London. Improvements relating to pneumatic tires. September 15.

16,490. Charles Thomas Brock Sangster and Robert Osborne Cowan, 24, Temple row, Birmingham. Improvements in pneumatic tires for cycles and other vehicles. September 17.

16,491. *Same.* Improvements in pneumatic tires and like valves. September 17.

16,533. Ludwig Heinrich Lang, Birkbeck Bank chambers, Chancery lane, London. Substitute for Gutta-percha. September 17.

16,577. Alphonso Anthony Verel, 121, West George street, Glasgow. Improvements in elastic tires for wheels. September 18.

16,624. William Phillips Thompson, 322, High Holborn, London. Improved protective device for pneumatic tires. [Firm of Koch & Palm, Germany.] September 18.

16,684. Edward Sherlock, Mill Brow House, Croft, near Warrington, Sherlock light weight unpuncturable tire. September 19.

16,710. Hugh Taylor Stephens, 185, Fleet street, London. Improved means for the conservation of the outer covers of pneumatic and other tires. September 19.

16,722. Anders Christian Andersen and Laurits Sophus Andersen, 322, High Holborn, London. Improvements in pneumatic tires. (Date applied for under Patents, etc., Act 1883, Sec. 103, March 19, 1900, being date of application in Denmark.) September 19.

16,828. Edward Francis Grainge, 3, McDowall road, Camberwell, London. Improvements in tire protectors. September 21.

16,844. Horace Robert Andrew Philp, 11, Burlington chambers, Birmingham. Preparation to be used as a preservative paint for pneumatic tires. September 21.

16,849. William Trevor Doran, 37, Chancery lane, London. Improvements in the construction of pneumatic tires. September 21.

16,911. Max Vorwerk, 111, Hatton garden, London. Improvements in hose nozzles. September 22.

American Inventions.

15,327. Henry Harris Lake, 45, Southampton buildings, London. Improvements relating to valves for pneumatic tires. [Frank Clark Granger and Leslie Howard Hall, United States.] August 28.

16,635. Raymond Beach Price, Frank Wilbur Kinney, and The Calumet Tire Rubber Co., 45, Southampton buildings, Chancery lane, London. Improvements in apparatus for use in mounting rubber tires upon wheels. September 18.

16,640. *Same.* Improvements in devices for securing the ends of rubber vehicle tires. September 18.

PATENTS GRANTED.—APPLICATIONS OF 1899.

7807. Attaching tire to rim. Klapka, J., 34, Kerepesi-Ut, Budapest, Hungary. April 13.

7995. Method of manufacturing seamless India-rubber articles. Wicks, Joseph Thomas, Birmingham. April 17.

8041. Devulcanizing India-rubber. Theilgaard, A. E., and J. V. J., 39, Wiedewelrsgade, Copenhagen, Denmark. April 17.

8351. Non-puncturable pneumatic tire. Spratt, C. H., 23, Loughborough park, London. April 21.

8563. Non puncturable pneumatic tire. Swan, T. McQ., 3, Royston terrace, Edinburgh. April 24.

8793. Solid rubber tire. Falconnet, H., and Perodeaud, M., Cholsy-le-Roi, (Seine) France. April 26.

9066. Pneumatic tire. Marshall R., Clay Cross, Derbyshire. May 1.

9158. Tire cover. Gilly, P., 14, rue des Panoyaux, and Planche, C. L., 83, rue Vielle du Temple, Paris, France. May 1. (Date claimed under Sec. 103 of Patents, etc. Act 1883, October 17, 1898.)

9170. Non detachable tire and inflating valve. Roney, E. S., No. 463, College street, Toronto, Ontario. May 2.

9370. Pneumatic tire. Paull, W. H., 4, Strensham road, Birmingham. May 4.

9619. Pneumatic tire. Swain, W., and Swain, L. H., Bolton, Lancashire. May 8.

9664. Tire cover. Sichel, F. A., and Ludwig, J., Mayence, Germany. May 8.

9900. Pneumatic tires having layers of threads embedded in rubber. Gray, C. H., of the India Rubber, Gutta Percha and Telegraph Works Co., Silvertown. May 10.

9961. Non puncturable pneumatic tire. Lials, L., 19, Avenue MacMahon, Paris, France. May 11.

10,046. Steel and rubber tire. Freysinger, J., 24, Schlockstrasse, Riga-Sassenhof, Russia. May 12.

10,250. Air tube for pneumatic tire. Wicks, Joseph Thomas, Ferndale, Tamworth road, Birmingham. May 16.

10,425. Method of attaching tire to rim. Simms, F. R., 12, Norfolk street, Strand, London. May 17.

10,762. Air tube for pneumatic tire. Garvin, J. A., Elandsfontein, South African Republic. May 23.

10,820-10,821-10,822. India rubber, Devulcanizing. Theilgaard, A. E. J. V. J., Copenhagen, Denmark. May 23.

10,835. Jointing rubber tubes. Medlock, J. H., 6, Albion terrace, New Fletton, Huntingdonshire. May 24.

10,969. Method of making India-rubber seamless articles. Ingram, F. W., London India rubber Works, Middlesex. May 25.

11,197. Method of attaching tire to rim. Hall, R. A., 113, Brighton grove, Newcastle-on-Tyne. May 30.

American Inventions.

7238. Hoof pads. Alexander, A. E., 19, Southampton buildings, London. [Haslehurst, E. W., Sing Sing, New York.] April 6.

8899. Method of attaching tire to rim. Swinehart, J. A., Akron, Ohio. April 28.

8943. India-rubber boot heel. Berry, C. McC., Commercial Hotel, San Francisco. April 18.

9237. Rubber horseshoe. Howe, W. R., Dayton, Ohio. May 2.

9973. Horse shoe pads. Shaw, W. E., No. 1619 Market street, San Francisco. May 11.

10,512. Pneumatic tire. Young, D., 11, Southampton buildings, London. [Page, C. G.; No. 185 Dearborn street, Chicago.] May 18.

10,823. Method of attaching pneumatic tire to rim. Langmuir, W., No. 110 West Forty-third street, New York. May 23.

11,159. India-rubber, Devulcanizing. Boult, A. J., 111, Hatton garden, Middlesex. [Marks, A. H.; Akron, Ohio.] May 29.

EBENEZER D. BASSETT, vice consul for Haiti in New York, informs THE INDIA RUBBER WORLD that the government of that republic, in view of the desirability of developing new industrial interests on the island, has begun to devote its attention to the possibility of cultivating India-rubber there. He has, therefore, been requested to aid in obtaining information of a practical character upon this subject, and has devoted considerable attention of late to this subject.

NEW GOODS AND SPECIALTIES IN RUBBER.

"EASY" RUBBER HEELS AND SOLES.

THE construction of the rubber heel illustrated here differs from that of any other heel. One of the principal features is the rubber flange at the front and sides, which, when the heel is applied to the shoe, is covered with a die cut piece of leather (furnished by the manufacturers of the heel), securely nailed to the heel through the rubber.

The leather holds the front of the rubber heel in position and precludes all possibility of scuffing loose. The opposite end of the rubber heel is fastened to the shoe by four brass tacks, which are inserted in holes provided for the purpose and driven half way through the rubber, until the head rests against a washer, making a very secure fastening. These holes are small and, for this reason, will not gather dirt. The corrugations in the heel are intended to prevent slipping, and hence to lessen the necessity of wearing overshoes on account of icy streets or wet weather. The heel is noiseless, likewise, which should commend it to those who have to walk much on hard floors, apart from the ease which its use adds to walking.——The "Easy" rubber sole is also made with a flange around the outside. The manufacturers do not furnish leather for the sole flanges, as any shoemaker is likely

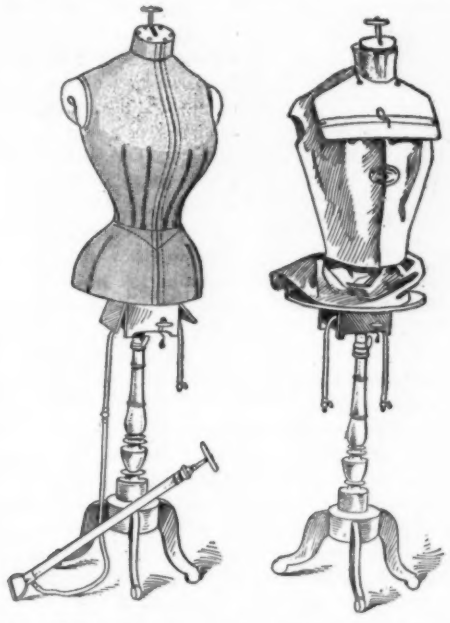
to have on hand scrap from which to make the small strip for holding the sole, and through which nails should be driven. Cement, of course, is used for holding in place both the heel lifts and the soles illustrated here. [The Whitman & Barnes Manufacturing Co., Akron, Ohio.]

A NEW THING IN METAL SHUT OFFS.

AN interesting feature in the construction of metal shut offs for fountain syringes made by the Brass Goods Manufacturing Co. (Brooklyn, N. Y.), is that it is made with a curved lip, instead of the parallel lips in the shut offs made by other concerns. To illustrate the method by which this feature works, suppose that the end of a small rubber tube be taken between the thumb and forefinger, and subjected to firm pressure. It will be found to close first in the center, leaving a leakage opening on either side. But if the end of the same tube be taken between the thumb and forefinger of both hands, and the opposite sides of the tube be compressed, without pressure upon the center at all, the tube will be thoroughly closed throughout all its width. In other words, this new shut off, by pressing on the tube first where the greater thickness and rigidity of the rubber comes, forces the excess of rubber into the center, thereby automatically closing the tube. This new article is the result of long study and experiment by thoroughly practical people who have been engaged for years in the manufacture of shut offs, and have experienced the drawbacks connected with the use of the styles sold hitherto. It is protected by patents both at home and abroad.

THE PNEUMATIC FORM.

THIS device, in the construction of which a certain amount of rubber is used, is intended for the use of dressmakers and ladies' tailors, to prevent the discomfort to their customers which results from repeated fitting and trying on of costumes. The idea is, in order to insure the fit of a waist, jacket, ulster, or skirt, to shape a canvas lining to the customer's figure, baste it up, and slip it on the form. Then the form is blown up, and



the lining will fill out so as to give an exact counterpart of the customer. The figure thus obtained can be used for fitting or trying on garments. This form is recommended especially to ladies' tailors or dressmakers who have an out of town business. The form has been patented and was shown at the Paris Exposition. Special forms are made for the merchant tailoring business. [Salen & Schröder, agents for the United States and Canada, No. 111 Fifth avenue, New York.]

THE HASKELL GOLF BALL.

EVER since golf has grown to be a popular pastime in the United States, American ingenuity has been severely taxed to produce a ball that was not altogether Gutta-percha, and which would do what balls now on the market will not do, and notably to fly further than the liveliest of them all. The Haskell ball, according to official records, will fly from fifteen to

twenty yards further than any ball now on the market. The ball is the result of an extremely interesting discovery in connection with rubber. Its center is made of rubber thread, which is stretched to its limit, and then wound tightly by a machine constructed for the purpose. It is found that a ball made of thread thus stretched and wound has a peculiar Gutta-percha-like rebound, with perhaps a trifle of added resiliency. In order to protect the thread, it is covered with a Gutta-percha shell. The ball is patented in the United States and in Europe. The durability of the ball is, of course, a matter that interest all golfers. With careful playing, the Haskell ball will last much longer than the ordinary ball. In the line of proof of this, can be cited a letter from a prominent member of the Crescent Athletic Club, of Brooklyn, in which he states that he had a Haskell ball with which he had played over 200 holes, and it was still in good condition. Clubs and individual golfers all over the world are awaiting with much interest the introduction of this ball on the market, which will be early in the spring. [The B. F. Goodrich Co., Akron, Ohio.]

THE "CLIMAX" RUBBER HOOF PAD.

THE foot of a horse, as first planned by nature, undoubtedly was a work of perfection, and fitted to perform its functions without any human addition or amendment. But modern macadamized roads and paved city streets are not a part of the scheme of nature; else the horse's hoof might have been designed on a different model. It is when man begins to demand that the horse shall perform his work under artificial conditions—as in walking on solid Belgian blocks or slippery sheets of asphalt—that provision must be made for adapting the horse to these new conditions, and one result has been the application of rubber to the hoof, both to give a cushioned tread and to enable the horse to maintain its footing without exhausting effort. The "Climax" hoof pad, illustrated herewith, has proved very popular with horsemen. It is made either in the closed style shown in the cut, or ventilated by means of a large opening in the center, to meet the wants of those who contend that a pad should not be the means of excluding air from the foot. The same firm manufacture a number of different styles of pads for special requirements. [The Consolidated Hoof Pad Co., No. 18 Vesey street, New York.]

"A STITCH IN TIME"

ONE MEXICAN RUBBER PLANTATION.

THE statements printed in our last number [page 22] under the head "Returns from Rubber Planting," relative to the work in Mexico of La Zacualpa Rubber Plantation Co. have been supplemented by a later issue of *The Rubber Planters' Bulletin*, from the company's San Francisco office. In the first place, their resident director (in Mexico), O. H. Harrison, writes of a new method of preparing rubber from the *Castilloa elastica*, by Enrique Ampudio Chavero, the plantation manager. It consists of the addition to the *latex* of the juice of a plant found on the plantation, resulting in a more satisfactory coagulation than has before been seen in that country. The result is described by Ashmore Russan, an English rubber expert who carried a specimen from Mexico to London lately, as a "perfectly pure and almost white product." Mr. Ashmore says, further: "I consider it equal to the finest Pará, that is worth 4*s.* 2*d.* per pound (or say $1 gold). Certainly no Central American or Mexican rubber like the Zacualpa company's has ever been put on the market. It is worth at least 50 per cent. more than that prepared by the Indians."

A letter from Mr. Ashmore printed in this Bulletin states that on July 4 last he saw on the Zacualpa plantation a nursery of three acres, said to contain 2,000,000 plants of *Castilloa elastica*, growing so regularly as to suggest that all the seeds planted had germinated. He inspected 30,000 young trees, two years old from seed, growing amid maize and shaded by it, the majority looking healthy and strong. Planted in other areas, also chiefly among maize, were 270,000 other young *Castilloas*, looking well, and Manager Ampudia expected to plant 300,000 more during the season. On the company's old plantation he saw planted trees ten years old being tapped. Some of these he was unable to span with his arms at four feet from the ground, "and few, if any, were under fourteen inches in diameter."

"The men were tapping the trees in the old Indian fashion, but it was probably the last time they would be permitted to do so. Senor Ampudia and his colleague, Senor Lopez, are experimenting with a view to discovering a less murderous, more economical, and more simple method, and as I am quite as keen as they are, I am going to send out some special tools and knives to further their experiments. I think, though, that they have hit upon a method which will enable them to do without machetes and knives. I have a pretty good idea as to what the method is, but at this stage I prefer to say nothing more about it."

Mr. Ashmore attempted to cure some *latex* from *Castilloa* trees by smoking, using a stove and corozal nuts for fuel. "The milk coagulated, but the rubber was very spongy, and the process terribly slow."

SOME WANTS OF THE RUBBER TRADE.

[134] FROM a large rubber factory comes this inquiry: "Can you inform the undersigned of some good material to use in rubber mold work, for separating rubber from the mold, other than soap?"

[135] "We are trying to locate a firm that handles or manufactures a nozzle, 2 inches in diameter, with a screw cap which screws on the inside, such as is used in the English style of ice caps. We rather think that they are imported from England."

[136] From Japan: "We are preparing to manufacture cotton belting for the silk industry here, and are anxious to obtain information regarding a machine or loom for weaving the same."

[137] "Kindly refer us to the manufacturers of screw caps for ice bags and stoppers for rubber water bottles."

[138] A rubber manufacturing firm write: "We want the best jar ring lathe in existence. Can some one supply us with details through THE INDIA RUBBER WORLD?"

ANSWERS.

[131] "REGARDING rubber shear pads, we should be pleased to have you say that the Day Rubber Co. (St. Louis) make a specialty of these things."

[132] John Lang, 137, Fenchurch street, London, writes: "Referring to your inquiry for Patinaki gum, I beg to say that you probably intend Pontianak, in which article I deal very largely." [Our correspondent who had the inquiry for "Patinaki" called the attention of his customer to Pontianak, and found that that was what was wanted.]

JOTTINGS BY THE TRAVELING EDITOR.

FROM the day when crude India-rubber first came to market it has been subject to a certain amount of adulteration on the part of the gatherers. As a rule, the foreign matter has taken the shape of stones, clay, or earth, and in such form that it was easily removed in washing. There are other types of adulteration practiced by the gatherers, however, that injure the rubber to a far greater degree, and that are more difficult both to detect and to remedy. One of these is the addition, during coagulation, of the sap of inferior species of rubber trees, that often are only a positive detriment to the quality of the gum. A pioneer recently returned from South America tells the writer that fully one-half of the vines and shrubs through which the explorer cuts his path exude milky sap, and, when one shows any degree of stickiness in drying, it is invariably added to the true rubber milk, provided, of course, that there is enough of it to make it worth while. As most of these are resin producers, rather than rubber producers, it is easily seen that an injury is done the rubber. But a far more serious evil is the addition of farina flour by the gatherers. The late Joseph Banigan once made a claim that a certain shipment of Pará contained an adulterant that greatly injured the rubber. At that time it was thought that he was mistaken, but from later knowledge it seems quite probable that he received a farina bearing lot. Aside from the fact that a manufacturer does not care to pay $1 a pound for Upriver farina, and fermented at that, is the direct damage that the fermented product does to the rubber. It certainly injures its fiber and its durability, and, if persisted in, is likely to cause a deal of trouble.

* * *

SPEAKING with one of the leaders of the rubber trade in Boston the other day, the writer asked what was the most interesting question before rubber manufacturers to-day, and the instant reply was, the future price of rubber, and that the question next in importance to that, was the exact value of different grades of crude rubber. "Indeed," said this gentleman, "of all the rubber manufacturers with whom I come in contact, there are very few who can tell with any degree of accuracy the compounding value of rubbers other than Pará. While it is probable that this will never be an exact science, there are some, who, through long experience and a fine sense of discrimination, are able to select and use grades that others would reject, from which they get excellent and profitable results." In other words, there is a sixth sense bred in the selection of grades of rubber that, like the tea taster's expertness, comes only with experience. As far as may be the appearance of the gum, its cleanness, smell, texture, etc., together with its shrinkage, tell a great deal, but beyond that there are other qualities, in a measure apparent to the expert, that give indications of quality. This is notably the case in rubber that is selected for especially fine goods, and is just as true of Pará goods as it is of Centrals and Africans.

* * *

A RUBBER manufacturer quite recently told with evident satisfaction of an experience with a chemist whom he employs off and on. The manufacturer, by the way, is not a believer in the general usefulness of chemists in rubber work, a point on which the writer differs from him. The chemist under discussion had been given some vulcanized samples to analyze, and, among other things in his report, he specified a certain amount of reclaimed rubber. The manufacturer accepted the report as given, but he is more than ever convinced that chemists do not know what they are talking about. As a matter of fact, unless a chemist has advanced further than most, he is absolutely unable to tell whether the rubber in his results is reclaimed rubber or new rubber, for the two, after vulcanization and compounding, are exactly similar, and it would have been far better for him had he not attempted to secure too much. It is quite possible, of course, that he has brought himself to believe that he can separate the two, but he has proved it to no one but himself, for the reason that he reported reclaimed rubber as present when it had not been added, and new rubber when it did not exist—an unfortunate matter, for he discredited not alone himself but all other chemists in his employer's eyes.

* * *

MR. JAMES BENNETT FORSYTH, of the Boston Belting Co., when not too busy to talk, is full of most interesting reminiscences of the rubber trade. He told the writer lately of an incident during the days when the late Dr. Morris Mattson, inventor of the Mattson syringe was a Bostonian, and was having his syringe bulbs made at the factory of the Boston Belting Co., or rather at the Roxbury Rubber Works, which it was then. It seems that Mattson was prosecuted for infringing upon a syringe patent, and, in order to prove their case, the plaintiffs wanted to get possession of his bulb molds. They therefore got a search warrant, and not only went over every part of the Roxbury factory, but had a keeper there for three days without being able to discover the molds. After they were gone, a large vulcanizer which had had steam on it for three days, and a man watching the gage, was blown off, and bulb molds, empty, of course, were taken out and dumped into a deep part of Stony Brook, and left there until the hunt was over. History does not say who devised such a hiding place as a huge vulcanizer, but, whoever it was, he was a keen analyst of human shortsightedness.

* * *

THE elder Salisbury, of the firm of Wm. Salisbury & Co. (Chicago), is justly proud of the fact that he was the first man in the United States to invent and apply the idea of main belting. He was only a boy at the time, but nevertheless was an expert mill constructor, at that time working under his father. The application was made, and was most successful, in a cotton mill that he erected wholly free from the advice or supervision of his elders.

* * *

THE output of Pará rubber this season may possibly be augmented by the fact that the drought in the state of Ceará has become so excessive that the governments of the Amazon states have been defraying the expenses of the famine-stricken Cearense peasants to Pará and Manáos, whence they would be likely to proceed to the rubber fields to find employment. During the first six months of this year the rainfall at the port of Ceará had been less than one-tenth as much as during the same period in 1899. For the same reason, a falling off in the production of Ceará rubber is to be expected.

AT the annual meeting of the Westinghouse Air Brake Co., at Pittsburgh, on October 2, reports were presented showing net profits for the business year of $3,519,198.75.

SOME RUBBER FEATURES OF THE CARRIAGE SHOWS.

RUBBER tires figured even more prominently than in the past at the exhibitions held in New York during the past month in connection with the conventions held by the carriage trades. They were prominent both as appearing in the equipment of the finished vehicles shown and in the exhibits of a larger number of rubber manufacturers than have been represented hitherto upon such occasions. An added feature of the exhibits was the appearance in most of them of automobile tire models, in which connection most that was really new in the rubber exhibits was to be found. There were two exhibitions this year, adding somewhat to the already onerous task upon exhibitors who wish to take advantage of every opportunity to bring their products to the attention of an important gathering of possible customers.

The twenty-eighth annual convention of the Carriage Builders' National Association of the United States was held October 16–18, the exhibition of carriage makers' materials being held in St. Nicholas Hall, in West Sixty-sixth street. The leading rubber manufacturers had exhibits here, but as a rule they were more prominently represented at the Grand Central Palace, where was held the eleventh annual convention and the seventh annual exposition of the National Carriage and Harness Retail Dealers' Protective Association, October 15–20. Here were no less than 72 exhibits of finished vehicles, representing thirteen different states. Many of these exhibits were large, and scarcely one of them was without rubber tired models—many of them showing several. Under the head of "Accessories," in this exhibition, the following firms were entered as exhibitors of rubber tires:

American Dunlop Tire Co.....Belleville, N. J.
Calumet Tire Rubber Co.....Chicago.
Clark Cycle Tire Co.....Boston.
Consolidated Rubber Tire Co.....New York.
Diamond Rubber Co.....Akron, Ohio.
Empire Rubber Manufacturing Co.....Trenton, N. J.
Firestone Tire and Rubber Co.....Akron, Ohio.
The B. F. Goodrich Co.....Akron, Ohio.
Goodyear Tire and Rubber Co.....Akron, Ohio.
Hartford Rubber Works Co.....Hartford, Conn.
The India Rubber Co.....Akron, Ohio.
Indiana Rubber and Insulated Wire Co.....Jonesboro, Ind.
Kokomo Rubber Co.....Kokomo, Ind.
Morgan & Wright.....Chicago.
New York Belting and Packing Co., Limited.....New York.
Revere Rubber Co.....Boston.
Victor Rubber Tire Co.....Springfield, Ohio.

With respect to carriage tires, the preponderance was heavily on the side of solid rather than pneumatic types. A representative of a company who make a feature of pneumatic vehicle tires said to THE INDIA RUBBER WORLD: "We estimate that about 1,000,000 rubber tire jobs were turned out in the United States last year, of which not more than 10 per cent. were pneumatic." There were pneumatic tires shown of the single tube and clincher patterns, besides the Dunlop detachable. Cushion tires also appeared.

The solid carriage tires shown varied in form of section and in the shape of steel channel, while each manufacturer, as a rule, offered something different in the shape of the longitudinal wires or bands for holding the tires in place, or in the method of applying these. The only solid tire without such wires or bands was the "Firestone," which employs instead a series of cross wires, vulcanized in the lower side of the tire, every three-quarters of an inch, which project and form a shoulder on either side. Upon this shoulder is placed an endless steel wire which bears down upon the cross wires, thus allowing no creeping and preventing sand or water from working between the channel and tire. There is also to be excepted the tires made by the Indiana Rubber and Insulated Wire Co., which are held in place by means of a clincher channel, into which fits a "friction base" of a harder compound of rubber than the outer portion of the tire. The "Victor" tire embraces the covered wire feature, to prevent the rusting of the wire or its cutting of the rubber. The Goodyear company's solid tire is their "Wing" type.

The carriage tires shown may be classified as follows:

Pneumatic.—American Dunlop, Clark, Diamond, Empire, Goodrich, Goodyear, Hartford, India Rubber, New York Belting and Packing.

Solid.—Calumet, Consolidated Rubber, Firestone, Goodrich, Goodyear, Hartford, India Rubber, Indiana Rubber and Insulated Wire, Kokomo, Morgan & Wright, Victor.

Cushion.—Goodrich, India Rubber.

All the manufacturers, as a rule, exhibited their tires in sizes suited for automobiles and other heavy vehicles. In the case of single tube pneumatic tires, the construction in some cases is modified to bear the heavier weight. The B. F. Goodrich Co. made prominent their "Clincher" vehicle tire, which has been shown in the past, but without being pushed so far to the front.

A new feature in solid tires for heavy vehicles is the "endless" type, held on by flanges on either side of the felloe, bolted through the felloe instead of by the usual steel channel. The Turner endless tire, shown by the Hartford Rubber Works Co., is of this form; also, the Wheeler endless tire, shown by The India Rubber Co. The new tire shown by the New York Belting and Packing Co., though a pneumatic tire, is also held on by flanges instead of being stretched on over the edge of a steel channel.

OTHER ACCESSORIES THAN TIRES.

THE Boston Artificial Leather Co. exhibited "Moroccoline," which is a material designed for covering carriage cushions and for other like purposes. W. N. Dale, representing this company, distributed handsome souvenirs in the shape of "Moroccoline" card cases.

Rubber carriage drills and duck was shown by the Empire Rubber Manufacturing Co. (Trenton, N. J.)

Specimens of "Pegamoid" for carriage makers, use were shown by the New York Paint and Leather Co.

The Cable Rubber Co. (Boston) were represented by President William J. Cable, who distributed among the trade a beautiful souvenir card case.

The Fairfield Rubber Co. (Fairfield, Conn.), also manufacturers of rubber carriage cloths, were represented by Mr. E. W. Harrall and Major Harral.

John Hopewell and Mr. Bishop, of L. C. Chase & Co., Reading Rubber Mills, were busy talking rubber carriage cloths.

An exhibit of artificial leather was made by the Keratol Co. (Newark, N. J.)

Theodore S. Miller represented John Reilly, Incorporated (Newark, N. J.), manufacturers of patent and enameled leather.

The Rubber Step Manufacturing Co. (Exeter, N. H.) were, as usual, represented.

A very interesting event in connection with the Carriage Convention, was the excursion down the Harbor given by the Standard Varnish Co. (New York), to customers and friends.

The company chartered the steamer *Valley Girl*, and some 400 guests responded. A bountiful spread was served and as a souvenir of the occasion, each lady was given a pair of opera glasses, and each gentleman a beautiful watch guard.

THE COMING AUTOMOBILE SHOWS.

LEADING manufacturers of rubber motor tires expect to make displays at the two exhibitions to be given in New York this month. The first automobile show under the auspices of the Automobile Club of America will occur in the Madison Square Garden November 3–10, when it is expected that over 500 different styles of vehicles will be on exhibition. This will be followed, November 14-24, by a show at the Grand Central Palace, promoted by Marcus Nathan, who has had charge in the past of the electrical exhibitions given in the same buildings and also at the Madison Square Garden.

RUBBER TIRES FOR HEAVY VEHICLES.

"THE Automobile Wagon for Heavy Duty" is the title of a very complete paper read by Arthur Herschmann, of New York, mechanical engineer for Adams Express Co., before the American Society of Mechanical Engineers. The primary object of Mr. Herschmann's studies has been to determine what rate of economy, if any, would be involved in the displacement of the horse drawn express delivery wagons with self-propelling vehicles. As a result, it is thought by the company that there would be no economy in dispensing with their one horse delivery wagons, involving the employment of skilled motormen instead of the boys who now drive the wagons at a small wage. For the heavier service, however, the showing made by Mr. Herschmann is in favor of the automobile service, under certain conditions as to territory and the ground to be traversed. Furthermore, his conclusions point to the superiority of steam machines over any other. Regarding tires, Mr. Herschmann says:

"Wheels in themselves are far more important problems than is generally believed. My opinion is, that at the present day no form of rubber tire will give satisfaction on a commercial wagon intended to carry a net load of, say, one ton or more. The rubber tire is not only expensive, but gives poor satisfaction under the combined action of great weight and speed. Attempts have been made to retain the desirable features of a rubber tire, protecting the latter with a tire shield of steel, dating back as far as the early 70s, but it would seem that such combinations are just as troublesome to maintain. Steel tires, if properly applied to stiff wooden wheels, have been proven to stand most severe work, and they afford the advantage of strengthening the wheels very considerably. It is my opinion that well constructed springs of ample proportion are alone the means to lessen the shock to which a wagon wheel is subjected. In the case of dished or cored wheels, which I consider to be best adapted for heavy work, a steel tire is indispensable, since it binds the wheel together and prevents the spokes from being torn out when striking an outer construction."

PNEUMATIC VS. SOLID TIRES.

ROBERT A. FLEISS, an electrical engineer, has prepared for *The Electrical World* a report of a series of exhaustive tests bearing upon "The Electric Automobile from a Commercial Point of View." The general purpose of the tests has been to determine, under varying circumstances, the relative economy of the use of horse drawn delivery wagons and electric vehicles, but the data bearing upon this point are too voluminous to be considered here. Incidentally, however, the subject of tires received attention. Mr. Fleiss writes:

"So far all the vehicles considered were equipped with solid rubber tires. To determine whether any considerable difference in power consumption results when pneumatic tires are used, vehicle A was equipped with wheels on which were 4 inch pneumatic tires. These replaced front wheels on which were 2 inch solid rubber tires, and back wheels on which the solid tires were 2½ inch." After giving in detail the results in power consumption, the author reaches the conclusion that "vehicles equipped with pneumatic tires will show a slightly increased rate of power consumption over those equipped with solid tires." The weight of the vehicle used in this test, with load, was 3355 pounds.

A BRAZILIAN RUBBER PLANTATION.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Is it possible to find in the United States, or elsewhere, some one who would be interested in a plantation of Ceará rubber? In March, 1899, we established a plantation in the state of Pernambuco, about 12 kilometers from the capital, where we now have more than 100,000 trees of the *Manihot Glaziovii*, vigorous and growing well. Having now, however, other needs for our capital, we should be willing to sell the plantation, though our preference should be to retain our present interest in it, provided parties can be found to join us as partners, or found a company, with a view to supplying the money needed for meeting the expenses involved during the few remaining years, until the trees become productive. The plantation really promises a very handsome profit. The estate is now in fine condition, with laborers' cottages and stables built by us, and pasture land fenced in and stocked with cattle. The location is healthful and only about 3000 meters distant from a railway station. The extension of the railway past the estate is projected.

Within three or four years the trees are expected to begin yielding from 1 to 3 pounds of rubber per year. The labor of gathering the crop will be slight, because the trees will simply be tapped and the rubber will coagulate on the trunk, when it can be pulled off dry. With the monthly expenditure of $500 to $1000, not only can the plantation be kept in condition, but, within two years, our original plan of increasing the number of trees planted to 500,000 could be carried out.

We prefer for the present not to publish our names in this connection, but will be pleased to have this appear in THE INDIA RUBBER WORLD, and to have you receive for us any correspondence which may result. M. & CO.

——, Brazil, October 1, 1900.

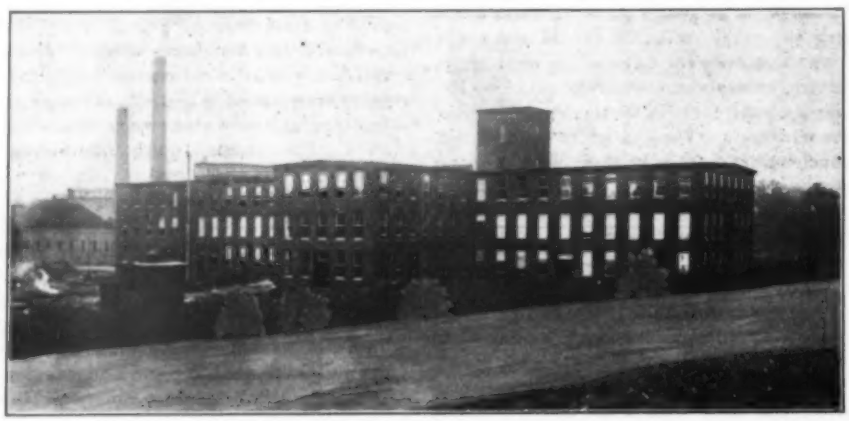
GUTTA-PERCHA FROM LEAVES.

THE *Indische Mercuur* (Amsterdam) gives a summary of the first annual report of the Nederlandsch-Indische Getahpertja Maatschappy (Netherlands-Indies Gutta-percha Co.), one of the two companies organized to exploit Dr. P. H. Ledeboer's process for the extraction of Gutta-percha from leaves. The plant of the company at Singapore was inaugurated October 1, 1899, but has not been operated fully for the lack of a sufficient and regular supply of leaves, for which reason the management are considering the subject of establishing their own supply of Gutta-percha. It is intimated that the director of the company has modified the original Ledeboer process, which is claimed to have improved it.——According to the *Bulletin de la Société d'Études Coloniales* (Brussels) a Mr. Brandt, of Singapore, has opened a new establishment at Pontianak, in Borneo, for extracting Gutta-percha from leaves.——This industry seems to be about as little encouraging as the production of Gutta-percha substitues.

NEWS OF THE AMERICAN RUBBER TRADE.

MAKING RUBBER SHOES AT GRAND RAPIDS.

THE manufacture of rubber shoes has been begun by the Grand Rapids (Michigan) Felt Boot Co., as THE INDIA RUBBER WORLD'S readers, for some time past, have been prepared to hear. The 400 horse power Bates-Corliss steam engine was started for the first time on September 27; the line of heavy machinery on the first floor was run for the first time on October 1; and work was started gradually in all the departments until the whole was in running order. For the purpose of making rubber goods the Grand Rapids Felt Boot Co. have had erected a three story brick building near their felt boot factory, the new structure being one of the most substantial in the city. The heavy machinery on the first floor is all geared direct to the main shaft, no belting being used. On the second floor are the cutting and pattern rooms and on the third floor the finishing and vulcanizing rooms. The factory is lighted throughout with electricity and is provided generally with up to date appliances and conveniences. It is equipped to give employment to 325 hands, and to turn out between 6000 and 7000 pairs of shoes per day. The various departments are in charge of experienced men from eastern rubber factories, the superintendent being R. H. Gardner, well known in the rubber shoe industry. The Grand Rapids Felt Boot Co. were established in 1880 and incorporated in 1881. E. S. Studley is president and treasurer; James E. Furman vice president; and John A. Covode secretary. Their capacity for the production of felt goods is 300 cases per day. The company's first quality rubber goods will be branded with the words "Grand Rapids Felt Boot Co., Grand Rapids, Mich.," surrounding a circle in which is inclosed the Michigan coat of arms. The second quality will be branded "Wolverine Rubber Co.," around an ellipse, inside of which will be a cut of a wolf. Goods will be sold through jobbers, combined with felt goods or otherwise, as desired.



FACTORY OF THE MILLTOWN INDIA RUBBER CO.

MILLTOWN INDIA-RUBBER CO.

A VIEW is presented herewith of the factory lately erected and put in operation by the above named company, at Milltown, New Jersey, a description of which appeared in THE INDIA RUBBER WORLD for October. A rear view is presented, for the reason that from no other viewpoint can be obtained a photograph that will so fully illustrate the extent and general shape of the buildings. The factory is now in full working order, and producing a full line of rubber footwear, as indicated in the price list just issued and which is noticed on another page under the head of "New Trade Publications." Selling arrangements have also been completed, and placed in charge of competent and experienced men. As already indicated, the establishment of this new industry has been cordially welcomed in Milltown, the whole population of which has been accustomed to depend in some measure upon the rubber shoe industry, from the time when the late Christopher Meyer first introduced this business there. The president of the new company, John C. Evans, who is also mayor of Milltown, is regarded by the citizens as having taken an interest in the development of the town, and his success is wished for by all the citizens of the place, apart from the fact that it will afford a wider opportunity for the prosperity of Milltown.

APSLEY RUBBER CO. WILL NOT ADVANCE PRICES.

THE following circular was issued to the boot and shoe jobbers on October 1: "At the time we presented our illustrated catalogue and price list for the season of 1900 and 1901 to the trade, we announced an advance of 5 per cent. to take effect November 1. After giving this important matter very careful consideration, and looking carefully into the advantages and disadvantages to the manufacturers, jobbers, and retailers, we have decided, that though the prices of raw materials are still high, we can produce a first class article at present prices.

"We believe it to be detrimental to the interests of all concerned to make an advance at that time, as it unsettles the trade and induces many dealers to purchase goods that they do not need. This policy may procure some increased business for the moment, but it will not create an actual market for one extra pair of boots and shoes.

"It leads to over production for the time being, and confusion and loss later to all parties interested. We do not care for an artificial business obtained in this way; therefore, as long as the cost of raw material will warrant it, we do not propose to make any advance on our goods.

"We feel confident that in adopting this course we will have the approval of both the jobber and retailer. We shall maintain the highest standard possible and not change our prices up or down unless we are absolutely obliged to by reason of radical changes in raw materials."

CRESCENT BELTING AND PACKING CO.

The company above named have lately made a notable addition to their plant at Trenton, N. J., in the way both of new buildings and of machinery. Treasurer Murray did not "wait until after election" to place his building contracts, because he was firmly convinced that the election was going right anyhow, and, furthermore, because the factory was so crowded with orders that enlargement was a necessity.

AMERICAN BICYCLE CO.'S REPORT.

THERE is not much on record with which to compare the statements contained in the reports presented at the first annual report of the American Bicycle Co., held in New York on October 9. If, however, the statements contained in the company's prospectus, issued September 29, 1899, be analyzed and the figures relating to their business on July 31 last be placed beside them, the result will be like this:

ASSETS.

	1899.	1900
Real estate and buildings	$ 3,997,385.67 }	$30,000,000.00*
Machinery, tools, etc	5,884,624.77 }	
Merchandise on hand	7,493,486.46	5,815,008.07
Accounts and notes receivable, and investments	5,031,715.19 }	4,432,987.03† 4,004,700.00†
Cash	1,176,532.50	1,072,881.84
Unexpired insurance		44,537.70
Total	$24,183,744.59	$45,370,114.64

LIABILITIES.

Total, as per prospectus	$1,893,594.13	$
Accounts and notes payable		3,280,619.64
Factory bonds and mortgages (prior to consolidation)		121,000.00
Debentures at 5%		10,000,000.00
Preferred stock, 7%		10,000,000.00
Common stock		20,000,000.00
Total	$1,893,594.13	$43,401,619.64
Surplus account		$ 1,968,495.00

* Appearing as "Plant Investment."
† Appearing as "Accounts and Notes Receivable" and "Investments."

These figures, however, throw no light upon the condition of the year's business. President R. Lindsey Coleman reports that the transfer of the various properties to the company was not completed until September 22, 1899, after which but little time remained to organize for the coming season's trade and to inaugurate the various economies in prospect. A beginning has been made in this direction, however. Treasurer A. L. Garford reports a net profit for ten months of $605,579.71, after paying interest on bonds. Assuming that the interest to be accounted for is $416,666.67 (ten months at 5 per cent.), a net profit from operation is shown of $1,022,246.38. It also appears that the company's "Investments in securities" yield an income at the rate of $256,475.

It will be remembered that the prospectus issued last year stated that "the net earnings of the said factories, after deducting all charges for interest on capital, and depreciation on machinery and plant, have been as follows:

1895	$5,118,957.68	1897	$3,708,867.28
1896	7,763,460.39	1898	3,328,884.77

"We have also inquired," the prospectus says, "into the net earnings of said factories for the present fiscal year [1899], and from these inquiries and the information furnished to us by the manufacturers themselves, we estimate said net earnings at $3,983,634.32."

The investments referred to in the annual report are understood to be, for the most part, securities of the Rubber Goods Manufacturing Co., taken in payment for the rubber tire factories at one time owned by the American Bicycle Co. Since the period covered by this report, the Bicycle company has offered to the stockholders the Rubber Goods stock, with the idea, it is presumed, of obtaining additional working capital.

Under its terms of organization the American Bicycle Co. was to retire $250,000 of its bonds annually, beginning in 1901. *The Bicycling World* says that "during the year the administration made a quiet and clever coup that has placed the company in a fortunate position in this regard. While the bonds were retirable at 105, when the price of them was driven away down the company went quietly into the market and at the low quotations bought up enough to retire its own bonds for the next three years."

American Bicycle common stock was quoted in New York on October 23 at 5 asked and 3 bid; preferred, 22 asked and 18½ bid; bonds, 70 asked and 65 bid.

There was no change in the list of directors at the annual meeting, and the old officers were reëlected.

AMERICAN ELECTRICAL WORKS (PROVIDENCE, R. I.)

THIS company, mentioned in the last INDIA RUBBER WORLD as having formed close relations with the Washburn Wire Co., will retain its organization, property, and officers as heretofore, and continue business in the same way. The close relation of the two companies, however, will enable each, by means of the wire factories owned by the two, to handle more conveniently than heretofore orders for both bare and insulated copper wire and for steel and iron wire of all kinds. General Manager Eugene F. Phillips, of the Electrical Works, becomes vice president and a director of the Wire Company, and President Charles G. Washburn and General Manager John D. Curtis, of the Wire Company, have joined the Electrical Works board.

STERLING RUBBER CO. (BOSTON.)

J. PERCY WHIPPLE has purchased the interest in this company of his former partner, John L. Whitehead, the change dating from October 1, and is now in full control of the business. The Sterling Rubber Co. handle mackintoshes, druggists' sundries, and rubber goods generally. For the past two years and a half the business has grown steadily, and plans have been formed for an increase of capital to meet the large trade that the former management could not attend to.

CONSOLIDATED RUBBER TIRE CO.

REPORTING on the market for shares for October 9, the New York *Times* said: "Consolidated Rubber Tire preferred sold in odd lots at 30¼ and 30. This showed a considerable advance over the last sale, which was made last week at a fraction under 25. At that time the common stock sold at 3, and yesterday it was quoted at 4⅛ bid. These fluctuations seem due to nothing but the extremely narrow character of the market for this stock. It is a somewhat interesting fact that a preferred stock that is paying 6 per cent. should be selling at 30, and at times much below that figure. Some few other stocks are in a similar position, and in some cases it is difficult to explain the discrepancy between market value and what might be considered a reasonable valuation based on the showing made."

RUBBER SHOE FACTORY NOTES.

THE Hood Rubber Co. have let the contract for a four-story brick and stone addition, 80 × 100 feet, to their factory at Watertown, Mass.——The Woonsocket Rubber Co.'s factory at Millville, Mass., resumed work on October 1 and has since been busy.——The Byfield Rubber Co. (Bristol, R. I), who have been using the repair shop of the Consolidated railroad as a storehouse, have been notified by the railway people that, when the present lease expires, the building is to be removed.

MECHANICAL FABRIC CO. (PROVIDENCE, R. I.)

THIS company announce in their advertisement elsewhere—confirming the news published in THE INDIA RUBBER WORLD in its last issue—that they have disposed of their tire and tire sundries business to the Hartford Rubber Works Co., to whom should be sent hereafter all orders for tires and inner tubes such as have been manufactured in the past by the Mechanical Fabric Co. By the way, the Mechanical Fabric Co. will conduct their other lines—rubber thread, card cloth, air goods, etc.—the same as heretofore.

UNITED STATES RUBBER CO.

THE directors on October 4 declared a 2 per cent. dividend on the preferred stock, being the first quarterly dividend from the net earnings for the fiscal year beginning April 1, 1900, the same being payable October 31 to stockholders of record October 13. The last dividend declared on the common stock was declared April 5, completing the payment of 4 per cent. for the last business year.

NEW INCORPORATIONS.

THE Goodyear Rubber Co. (St. Louis), September 27, under Missouri laws, to carry on the business of the old firm of the same name; capital, $25,000. Incorporators: Timothy Mulford, John B. Miller, Jr., Frederick M. Shepard, Jr., George B. Thomson, and Frederick S. Minott.

=Monarch Chemical Co., September 17, under Maine laws, for the purpose of manufacturing and dealing in cements of all kinds, and particularly rubber cements; capital, $10,000. President: Sidney F. Dean, West Medford, Mass.; treasurer: Benjamin F. Sargent, Amesbury, Mass.

=The Chicago Electric Hose Co. (Wilmington), October 5, under Delaware laws, to make and deal in rubber hose, continuing a business conducted hitherto under the same name; capital, $200,000. Incorporators: E. T. Davis, Philadelphia; Henry Z. Cobb, Delaware county, Pa.; W. S. Hilles, Wilmington, Delaware.

=Emery Tire Co. (Providence, R. I.), under Rhode Island laws, to manufacture and sell bicycle and vehicle tires; capital, $100,000. Incorporators: O. L. Leach, C. H. Waite, A. Martin, J. C. Rohmer, all of Providence. H. E. Bellows, attorney Providence.

=Belanger's Incorporated (New York), August 25, under laws of New York, to deal in merchandise and manufacture rubber; capital, $500,000. Incorporators: William B. Richards, Pratt A. Brown and Herbert C. Larkin, all of New York. President: J. A. Belanger; treasurer: W. B. Richards. New York office: No. 1 Nassau street.

=Alfred Hale Rubber Co. (Boston), under Massachusetts laws, to carry on the business carried on by Alfred Hale & Co. for the past fifty years. The business embraces the manufacture of diving apparatus, rubber cement, repair cloth, soles, heels, and mold work, and the washing and sheeting of India-rubber and Gutta-percha for brokers and for other factories. Walter F. Johnson is president and Edward F. Bragg, treasurer. The office and factory address is No. 387 East Eighth street, South Boston.

TRADE NEWS NOTES.

L. F. LINDLEY, for ten years with the Mechanical Rubber Co. (Cleveland, Ohio), and for several years the manager of their clothing department, has accepted a position with the Raven Mining Co. (Chicago), as superintendent of their factory and sales department, the latter company having developed a new article for use in rubber compounds, of which THE INDIA RUBBER WORLD will have more to say in the near future.

=The rubber plant used by the late Peoria Rubber and Manufacturing Co. (Peoria, Ill.) was dismantled and removed to Akron, Ohio, but has never been set up there.

=The Elastic Tip Co. and George F. Kehew & Co., two well known Boston jobbing houses in the bicycle and sundries trades, have been consolidated under the name United Supply Co., with headquarters at the Kehew location—No. 55 Hanover street.

=The San Francisco branch address of The B. F, Goodrich Co. has been changed from No. 35 New Montgomery street to Nos. 308-310 Mission street.

=George Watkinson & Co. (Philadelphia), manufacturers of the "Thistle" brand of rubber boots and shoes, have issued this announcement to the trade: "We have decided to make no advance in price on November 1. There is no increase in manufacturing cost to justify it, and, as we do not regulate our prices to suit our competitors, we see no reason why we should afflict our customers with higher prices because others do."

=Final argument in the suit brought by The Rubber Tire Wheel Co. (Springfield, Ohio) against the Victor Rubber Tire Co., for alleged infringement of the Grant rubber tire patents was heard before Judge Thompson, in the United States circuit court at Cincinnati, on October 2 3.

=Charles A. Coe & Co. (Boston) report the receipt of an order for 8700 pairs of tennis shoes for export to a customer in Honolulu, who increases the size of his orders from time to time.

=The establishment of Holden, Leonard & Co. (Bennington, Vt.) who manufacture on a large scale materials for the mackintosh trade, is busier than it has been in some weeks, the firm being in receipt of large orders for goods. Nearly all of the looms of the mill are now running.

=The Metuchen Manufacturing Co. (Metuchen, N. J.) have succeeded to the business of the late P. Carter Bell Co. in the manufacture of white and black rubber substitutes.

=J. G. Swindeman & Co. (No. 231 Superior street, Toledo, Ohio) are going into the rubber jobbing trade and would like to have prices on druggists' and other sundries and rubber novelties generally.

=The Lycoming Rubber Co. (Williamsport, Pa.) have done a very fine business this fall in light goods. The popular Lycoming croquet, "Acme," and the light-weight men's sandal, the "Amaranth" and the "Aqua" slipper, the high front stormy day shoe for both men and women have been particularly in demand.

=John H. Clark, selling agent for the "Meyer" and "Jersey" brands of rubbers, recently took a short trip to Philadelphia and Baltimore and through that section of the country, and reports the outlook for these special brands of rubbers exceedingly good in that section.

=The American Electrical Works have been drawing plans for a brick addition to their factory at Phillipsdale, R. I.

=The Pennsylvania Rubber Co. (Erie, Pa.) have secured, for general manager of sales of their tire and mechanical goods departments, Charles F. M. Kelly, who has held important positions with leading rubber companies during several years past.

=The Hartford Rubber Works Co. (Hartford, Conn.) have opened a San Francisco branch at No. 52 First street, in charge of M. J. Tansey.

PERSONAL MENTION.

COLONEL SAMUEL P. COLT, of Providence, R. I., who is connected in so important a capacity with the rubber industry, was selected, at a meeting of the directors of the American Woolen Co., on October 23, to fill the vacancy on the board caused by the resignation of Charles Fletcher. Colonel Colt is largely identified with both woolen and cotton manufactures, and has important interests in the American Woolen Co. Charles R. Flint, also identified with the rubber business, is another director in the big woolen combination.——Mr. Flint is also credited with an important part in the syndicate formed lately to purchase the large Rogers Locomotive Works, at Paterson, N. J.

=J. Howard Ford, a director in the United States Rubber Co., and identified with the Meyer Rubber Co., on October 9 purchased the famous breeding plant near Goshen, N. Y., known as the Stony Ford Stock Farm. The property embraces

over 700 acres, well equipped for its uses, and a desirable country residence.

=Mr. and Mrs. John C. Evans, of Milltown, N. J., celebrated their crystal wedding at their beautiful home on the evening of October 22. They were married in New Haven, Conn., in 1885, and many of the guests who attended the ceremony were present at the fifteenth anniversary, together with a large number of other friends, new and old, from many parts of the country, including not a few members of the rubber trade, with their wives. Hart's orchestra rendered the music, and refreshments were served from the Mansion House. Many handsome presents were received. Mr. Evans is the mayor of Milltown and president of the Milltown India Rubber Co.

=Mr. E. C. Fuller, of the Franklin Rubber Co. (Boston) is again at his post, after a siege of illness which, with the subsequent period of convalesence, kept him from business for fully six months. Naturally he is the recipient of much cordial congratulation.

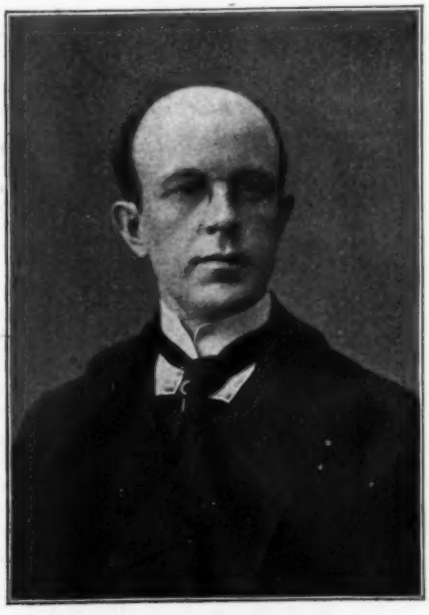
=The Hon. Elisha S. Converse presided at the last meeting of the Rubber Manufacturers' Mutual Insurance Co., in Boston, and his presence was warmly welcomed by the board, as he had not been able, for some time, to attend the meetings.

=Mr. George Augustus Reuter, of the American Wringer Co. (New York), and Miss Ada Loverin Manchett, daughter of Mrs. Georgiana Ada Manchett, were married on the afternoon of October 16 in St. Stephen's Protestant Episcopal church, in New York. The reception was held at Sherry's.

=Wallace B. Flint, treasurer of the Rubber Goods Manufacturing Co., has been elected secretary of the American Typewriter Co., lately reorganized under a West Virginia corporation with $750,000 capital.

HOMER E. SAWYER.

THE editor of THE INDIA RUBBER WORLD takes advantage of the absence in Europe of the selling agent of the Boston Rubber Shoe Co., Mr. Homer E. Sawyer, to bring before its readers this excellent likeness. Mr. Sawyer, being a modest man, has vetoed heretofore the publication of his likeness. When this goes to press, however, he is quite likely to be on the bosom of the great deep, and, if the weather be rough, will probably care very little whether his picture is printed or not. Mr. Sawyer was born at Metcalf Station, Massachusetts, August 8, 1866. His introduction to the rubber business was in Factory No. 1 of the Boston Rubber Shoe Co., where he went through every department, working his way up until he became assistant superintendent, and later was made selling agent of the company. Mr. Sawyer is a member of many clubs, among them being the Puritan and Exchange clubs, of Boston. He is also trustee and treasurer of the Malden Public Library, and a trustee for the Home of Aged People in Malden. He is a member of several golf clubs, and occasionally plays an excellent game. He is a genial, whole souled, active young man of affairs, and is extremely popular in the rubber trade.



KENZO OKADA.

THIS young man is a Japanese by birth, who came to the United States some four years ago, learned English in a short while, and then took a position in the factory of the Apsley Rubber Co. (Hudson, Mass.), where he worked most conscientiously in learning the rubber manufacturing business. So active and conscientious was he, that the Hon. L. D. Apsley took a personal interest in him and assisted him notably in getting his rubber education. Later he secured a position in a large mechanical factory, where he learned the business of general mechanical goods manufacture. He has now returned to Japan, where he has accepted a position with his uncle in the manufacture of insulated wire, the factory being in a suburb of Tokio. Mr. Okada, with his persistence and intelligence, is likely in time to occupy an important position in the rubber manufacture in his native country.

THE TENNIS SHOE TRADE.

F. D. BALDERSTON, selling agent of the Tennis product of the United States Rubber Co., lately returned to the Boston office from a business trip in the West, where he has been with his new samples, prices and terms for the season which opened October 1. He is most gratified at the prospect. Next season promises to be even greater than the past. Fortunately the line does not depend on the vagaries of the weather. The special features on Tennis are the heavy sole "Vacation" shoe and the new line of lasts throughout.

CARD case souvenirs were popular at the late carriage shows in New York. The Victor Rubber Co. (Springfield, Ohio) distributed one in black leather, which had an ingenious pocket which was partially concealed but which would hold large bills and documents, even though the case folded into very small compass.

LEONARD J. LOMASNEY has been appointed general sales agent of the Peerless Rubber Manufacturing Co., No. 16 Warren street, New York. Mr. Lomasney is a gentleman of considerable experience, having been connected for several years with the sales department of that company.

MR. WILLIAM WRIGHT, of William Wright & Co., the Liverpool crude rubber merchants, visited the New York house of that firm during the past month. Mr. Leonard Y. Croft, manager of the New York house, whose health has not been good of late, has returned to his home in England to recuperate.

SEND for a copy of the Index to "Crude Rubber and Compounding Ingredients."

ARE PNEUMATIC TIRES TOO SMALL?

AN Australian philosopher is of the decided opinion that the two inch and two and a quarter inch pneumatic tire in the place of the 1⅜ inch and the 1⅝ inch would be a great improvement. In defense of this position, he says:

"In almost all inventions relating to the improvements pertaining to cycles, nearly all of the advantage gained has been used to the increase of the pace, and little added to the score of comfort. Even the pneumatic tire, which was the greatest of all cycle inventions, adds less now to the comfort of the rider than it did when it first came into use. Were we to use the same sizes of tires as were fitted to the machines a decade ago, we should be repeating our experience as regards the comfort between those tires and the solids and cushions, which we underwent at that time. The tire of 1889 was 2¼ and 2½ inches.

"The tires are lighter and faster to-day. They are also smaller, consequently harder, and when of the sizes of 1⅜ and 1½ inches, used regularly for road use, the principle of the pneumatic is entirely eliminated, destroyed, because of the hardness to which they need to be inflated to prevent a chance of nipping between the rim and road. So many of the riders have gone gradually into the smaller size of pneumatics that they declare they do not notice any undue vibration. It is, however, noticeable in their disinclination and in efficiency as road riders, for the old ordinary riders, of fifteen years ago, used to travel quite as far, and oftener, than do the majority of riders of to-day."

REVIEW OF THE CRUDE RUBBER MARKET.

RECEIPTS of rubber at Pará thus far indicate a material shortage, as compared with the past two years. Up to October 26 the arrivals in that market since July 1 had been only 5044 tons, against arrivals of 5895 tons up to October 31, 1899, and 6160 tons to October 31, 1898. The smallness of these figures have caused the local estimates at Pará for the season's production to be materially revised. The prospect of a shortage, together with the fact that visible supplies are not excessive, might have been expected, without other modifying influences, to result in the maintenance of the prices quoted a month ago in these columns. The month under review did, indeed, open with indications that prices might be maintained, but a comparison of the quotations published to-day with those last given will show that latterly there has been a decline, amounting to as much as 6 cents a pound on some grades of Pará. The decline in Centrals and Africans, while less, has been general.

Brazil has been undergoing severe monetary and financial troubles, involving the suspension of payments by some of the largest banks in that country, and meanwhile trade in every department has been injuriously affected. There is not space here for consideration in detail of the conditions referred to, but without doubt they have had their effect in depressing the Pará rubber market, which depression has been reflected in markets elsewhere.

It is to be noted that the consumption in the United States has not been active of late. While business as a rule appears to have been affected less than usual during presidential campaigns by the absorption of the public mind in politics, rubber manufacturers, and other manufacturers as well, probably have postponed until after the coming contest at the polls the active pursuit of new business. Consequently their takings of crude rubber, during a good part of the month, have been limited to the covering of their more pressing requirements.

New York quotations October 31 were:

PARÁ.	
Islands, fine, new	92 @93
Islands, fine, old	94 @95
Upriver, fine, new	95 @96
Upriver, fine, old	97 @98
Islands, coarse, new	52 @53
Islands, coarse, old	62 @63
Upriver, coarse, new	70 @71
Upriver, coarse, old	72 @73
Caucho (Peruvian) sheet	54 @55
Caucho (Peruvian) strip	none imported now.
Caucho (Peruvian) ball	65 @66

CENTRALS.	
Esmeralda, sausage	03 @64
Guayaquil, strip	56 @57
Nicaragua, scrap	63 @64
Mangabeira, sheet	46 @48
EAST INDIAN.	
Assam	82 @83
Borneo	37 @48
AFRICAN.	
Tongues	55 @56
Sierra Leone	68 @70
Benguella	62 @63
Congo ball	57 @58
Cameroon ball	56 @57
Flake and lumps	44 @45
Accra flake	18 @19
Accra buttons	60 @61
Accra strips	63 @64
Lagos buttons	59 @60
Lagos strips	62 @63
Liberian flake	@
Madagascar, pinky	@
Madagascar, black	@
GUTTA-PERCHA.	
Fine grade	1.75
Medium	1.45
Hard white	1.20
Lower sorts	65
Balata	

Late Pará cables quote:

	Per Kilo		Per Kilo.
Islands, fine	6$600	Upriver, fine	7$700
Islands, coarse	2$600	Upriver, coarse	3$700

Exchange 10⅛ *d.*

NEW YORK RUBBER PRICES FOR SEPTEMBER (NEW RUBBER.)

	1900.	1899.	1898.
Upriver, fine	99½@103	1.01@1.04½	96 @1.03
Upriver, coarse	70 @72	77 @ 83	82 @ 87
Islands, fine	95½@99	96 @ 99	93 @ 99
Islands, coarse	55 @58	61 @ 63	63 @ 68
Cametá, coarse	56 @57½	62 @ 64	68 @ 74

STATISTICS OF PARA RUBBER (METRIC TONS).

NEW YORK.

	Fine and Medium.	Coarse.	Total 1900.	Total 1899.	Tota 1898.
Stocks, August 31	484	82 =	566	313	88
Arrivals, September	401	208 =	609	652	407
Aggregating	885	290 =	1175	965	465
Deliveries, September	515	210 =	725	628	397
Stocks, September 30	370	80 =	450	337	128

	PARÁ.			ENGLAND.		
	1900.	1899.	1898.	1900.	1899.	1898.
Stocks, August 31	255	695	350	1200	670	480
Arrivals, September	1235	1350	1750	310	385	725
Aggregating	1490	2045	2100	1510	1055	1205
Deliveries, September	1032	1705	1665	650	625	460
Stocks, Sept. 30	458	340	435	860	430	745

	1900.	1899.	1898.
World's supply, Sept. 30 (excluding Caucho)	2664	1995	2227
Pará receipts, July 1 to September 30	3188	3645	4260
Afloat from Pará to United States, Sept. 30	270	263	919
Afloat from Pará to Europe, September 30	240	605	

In regard to the financial situation, Albert B. Beers (No. 58 William street, New York), advises us as follows:

"Money has ruled firm during October, rates for paper being rather higher than in September, and are quoted at 5 @ 5½ per cent. for the best rubber paper and 5½ @ 6 per cent. or even 6½ per cent. for names not so well known."

UNITED STATES IMPORTS OF CRUDE RUBBER.

[FOR NINE MONTHS ENDING SEPTEMBER 30.]

FROM—	1898.	1899.	1900.
United Kingdom.....pounds	7,882,948	7,629,796	5,759,809
Germany	1,293,676	1,443,797	1,114,784
Other Europe.....	4,043,700	5,347,548	4,421,517
Central America.....	810,461	1,086,059	1,061,813
Mexico	116,438	298,347	284,975
West Indies.....	13,832	4,346	16,097
Brazil.....	16,513,784	21,798,955	20,430,081
Other South America.....	1,287,437	1,565,002	799,313
East Indies.....	443,124	765,761	473,741
Africa.....	5,531	4,106	.....
Other countries.....	48,056	43,204	41,412
Total.....	32,058,387	39,986,921	34,397,642

EXPORTS OF RUBBER FROM NEW YORK.

[VALUES BY WEEKS ENDING ON DATES BELOW.]

July 10.....	$ 4,538	August 14...	32,791	September 18.	7,173
July 17.....	800	August 21...	4,545	September 25.	9,906
July 24.....	547	August 28...	26,895	October 2....	6,792
July 31.....	3,129	September 4..	2,494		
August 7....	19,990	September 11.	372	Total ..	$119,972

[DESTINATION OF EXPORTS FOR THIRTEEN WEEKS.]

London	$ 2,381	Bremen... ...	1,125	Australia ...	103
Liverpool.....	33,543	Nuremberg...	165	New Zealand.	277
Leith.....	13,244	Rotterdam....	605	Mexico.....	151
Glasgow	8,261	Antwerp.. ...	283	West Indies..	52
Belfast	500	Brussels.....	915	S. America...	70
Southampton..	34	Copenhagen...	30	British Africa.	251
Havre.....	29,549	Genoa.....	30		
Hamburg	25,898	Japan... ...	2,505	Total	$119,972

PARA.

MAIL advices under date of October 15 are to the effect that: "With favorable advices from consuming centers this market has braced up again, and now maintains a firm front, particularly so as more incentive to buy is noticeable. There has not been, however, any decided growth of business, as supplies remain small. Prices, after slipping back to a slightly lower level, have again improved. The change on the whole, however, is merely fractional. Trade in general has not yet shown any symptoms of recovery from the financial paralysis which of late has crippled this place so severely, but with larger arrivals of rubber from Upriver improvement will set in."

LONDON.

JACKSON & TILL, under date of October 2 report:

		1900.	1899.	1898.
LONDON	Pará.....(English tons)	—	—	1
	Borneo.....	219	126	166
	Assam and Rangoon.....	33	26	3
	Other sorts.....	617	396	430
	Total.....	869	548	642
LIVERPOOL	Pará.....	866	428	740
	Other sorts.....	1111	855	459
	Total, United Kingdom.....	2846	1831	1841
	Total, September 1.....	3170	1988	1546
	Total, August 1.....	3645	1878	1469
	Total, July 1.....			
	Total, June 1.....	3624	2510	0159

PRICES PAID DURING SEPTEMBER.

	1900.	1899.	1898.
Pará fine.....	4/1 @4/4½*	4/2 @4/3½	3/11 @4/2
Negroheads, Islands ...	2/4	2/6½	3/8½ @3/6
Negroheads, scrappy....	2/11 @3/0½	3/2½@3/5	
Bolivian	4/2½ @4/4	4/3½@4/4	No sales.

*Very old Upriver.

A recent London quotation for Pontianak gum is £18 per t n, f.o.b.

LIVERPOOL.

WILLIAM WRIGHT & Co. reported [October 1] in regard to fine Pará: "The market was steady for the first half of the month, but a good demand coming on resulted in a large business being done at advancing rates; prices at the close are firm. Sales on spot total 260 tons, closing with sellers of Upriver and Islands at 4*s.* 3¼*d.*, buyers at 4*s.* 3⅛*d.* A fair business has been done for delivery, Upriver at 4*s.* 2*d.* to 4*s.* 3*d.*, Islands at 4*s.* 1*d.* to 4*s.* 3*d.*, closing with sellers of Upriver and Islands at 4*s.* 3½*d.* for November–December and 4*s.* 2½*d.* December–January."

J. J. Fischer & Co., Limited, report Liverpool stocks:

	June 30.	July 31.	Aug. 31.	Sept. 30.
Pará: Fine.....	1043 tons	1030 tons	864 tons	639 tons
Medium	124 "	138 "	85 "	60 "
Negroheads.....	315 "	339 "	286 "	192 "
African	777 "	823 "	710 "	725 "
Peruvian.....	455 "	381 "	144 "	132 "
Mangabeira.....	297 pkgs	205 pkgs	195 pkgs	445 pkgs
Pernambuco.....	75 "	86 "	41 "	41 "
Ceará.....	1407 "	1557 "	1393 "	1166 "
Manicoba.....	847 "	396 "	575 "	524 "
Assaree.....	121 "	166 "	166 "	241 "
Mollendo.....		411 "	156 "	356 "

BRITISH IMPORTS OF INDIA-RUBBER.

[JANUARY 1 TO SEPTEMBER 30—OFFICIALLY REPORTED.]

	1898.	1899.	1900.
Imports..... pounds.	39,959,136	37,218,832	45,109,008
Exports	24,416,112	25,084,976	25,326,224
Net imports	14,543,024	12,133,856	19,782,784

GUTTA-PERCHA.

Imports .....pounds.	5,151,440	6,124,720	10,761,072
Exports.....	788,144	569,072	1,009,008
Net imports.....	4,363,296	5,555,648	9,752,064

ANTWERP.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The public sales of October 11 resulted:

	Offered.	Sold.
Congo sorts..... tons	436	385
Other sorts	56	41
Total.....	492	426

Competition was brisk, and prices showed an advance of 1 to 2 per cent. over brokers' estimations. Two big lots of Lopori sold very well. One lot of 49 tons, valued at 7.85 francs sold at 7.90. Another, of 48 tons, valued at 8.05, sold partly at 8.30 (for 10 tons) and partly at 8.15 (for 32 tons.) The next sales, to comprise 140 tons, will take place early in November. Stocks now amount to 588 tons. Adding the rubber now landing by the *Bruxellesville* (224 tons), stocks amount to 812,259 kilograms. C. SCHMID & CO.

Antwerp, October 12, 1900.

THE latest circular of G. Van den Kerckhove (Antwerp) says: "Taking into consideration the quality offered at the sale of October 14, the result has been altogether very satisfactory, with regard to prices. Lopori and Sankuru have maintained their price, while Kassaï, red, II quality and Uellé advanced 15 and 25 centimes, respectively. Other kinds, for instance such as Upper Congo, were rather weak. We really do not know to what circumstances to attribute the bad condition of most of the lots of the above sale, and with regard to this we presume that the attention of factory managers must have been called to the want of care given to both the packing and storing. We also observe a relaxation in the manner of harvesting the red Kassaï. Perhaps we must seek the cause hereof in the intense competition which is existing in the Kassaï district. But it is not less true that if the agents in that region continue to give more attention to quantity than

quality, this fine rubber will fatally sink to the level of second quality, whereas for years in the past it could claim (together with prime Mozambique), the first place among the African rubbers.

"Viewing the actual prices of Pará, the prime red Kassai should be worth 10.25 francs, and even more. Unfortunately, its classification as 'prima' is no more permitted but with rare exceptions. We shall have occasion to speak again in the near future about other grades, whose quality leaves much to be desired with regard to drying. A slight criticism will be sufficient—so we hope at least—to induce the interested parties to take better care in giving the final touch to their rubber.

"Some important lots of Loanda and Benguela of beautiful quality, belonging to Verspreeuven-Wilmoth and to the Companhia de Angola, are still at disposal at advantageous prices. With regard to Loanda (Portuguese Congo) we deem it timely to announce that the latest statistics with regard to the production of this region show a sensible decrease in crops.

"Madagascar is producing at this moment a very fine white rubber. We say 'at this moment,' because before the granting of concessions and the methodical valuation of the island these rubbers were mostly of a mediocre quality. Antwerp offers a good market for these grades."

ANTWERP RUBBER STATISTICS FOR SEPTEMBER.

DETAILS.	1900.	1899.	1898.	1897.	1896.
Stocks, Aug. 31..kilos	1,056,124	400,432	144,526	157,278	57,300
Arrivals, September..	417,050	232,517	192,531	251,315	137,648
Aggregating. ...	1,473,174	632,949	337,057	408,593	194,948
Sales in September...	468,412	325,467	110,183	151,244	139,790
Stocks, September 30 .	1,004,762	307,482	226,874	257,349	55,158
Arrivals since Jan. 1..	4,584,468	2,628,387	1,415,479	1,315,785	639,762
Sales since January 1.	3,871,697	2,584,245	1,283,068	1,198,064	673,458

ARRIVALS AT ANTWERP.

SEPT. 24.—By the steamer *Phillipeville*, from the Congo:

Bunge & Co.....kilograms	87,107	
Bunge & Co. (Plantations Lacourt).....	2,005	
Société A B I R	45,743	
Société Coloniale Anversoise (Haut Congo).....	17,712	
L. & W. Van de Velde....	2,219	
M. S. Cols (Produits Végétaux).....	5,246	
Ch. Dethier (Société Belgika).....	5,137	
Divers.....	4,648	169,877

OCT. 8.—By the steamer *Bruxellesville*, from the Congo:

Bunge & Co.....kilograms	117,629	
Bunge & Co. (Société Anversoise)....	57,820	
Société Coloniale Anversoise (Haut Congo).....	24,157	
Société Coloniale Anversoise (Lomami).	10,077	
Cie. Commerciale des Colonies (La Kassaienne)....	2,074	
L. & W. Van de Velde (Comptoir Velde)..	2,000	
Sundry.....	5,000	
M. S. Cols (La Lubefu).	5,000	223,757

RUBBER FROM A NEW ASIATIC SOURCE.

IT is possible that an important source of rubber supply exists in the southeastern portion of Asia, a region the commercial development of which has received little attention hitherto. The recent activity of the French colonial authorities, however, in the territories under their control, gives promise of progress in that quarter, one result of which has been the appearance in the European markets of "Indo-China rubber." According to the *Moniteur Officiel du Commerce* of Paris there were exported during 1899 from French Indo-China about 112,200 pounds of rubber. The exports for the first three months of 1900 were 174,148 pounds, valued at 264,906 francs (=$52,981), as follows:

From Saigon.. . .....pounds	21,288	
From Tongking (including Laos and Annam)...	152,860	
Exported to France.... .....pounds	171,834	
Exported elsewhere.....	2,913	

The expectation that statistics for the remainder of 1900 will show a good rate of increase is supported by the offering at the Antwerp auction on October 11 of 39,184 pounds of Indo-China rubber. The following details regarding the rubber offered are communicated by A. Leemans & Co., of Antwerp:

Lot 874=1880 kilos. Valuation 7 francs.

In form of twists, balls, or large spindles, rolled into balls of medium size, of a whitish color inside; containing much resinous matter. Withdrawn.

Lot 875=3343 kilos. Valuation 6.50 francs.

In form of balls or cut pieces; inside gray or brown; clean but spongy; with considerable resin. Sold at 6.55.

Lot 924=9436 kilos. Valuation 8 francs.

In ball form or spindles; balls red of beautiful quality, resembling Kassai; containing a little bark and traces of sand; a little gluish; and slightly white inside; a handsome lot, exterior in very good condition. Sold at 8.05.

Lot 925=3152 kilos. Valuation 7.75 francs.

Like the preceding lot, but strongly pressed together; good quality, only more sticky inside. Sold at 8.07½.

SEPTEMBER EXPORTS OF INDIA-RUBBER FROM PARA.

IN KILOGRAMS. 100 KILOGRAMS=220 POUNDS.

EXPORTERS.	UNITED STATES.					EUROPE.					TOTAL.
	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.	FINE.	MEDIUM.	COARSE.	CAUCHO.	TOTAL.	
Cmok, Prüsse & Co.....	44,270	18,870	38,000	—	101,140	37,910	5,610	8,020	620	52,160	153,300
Adelbert H. Alden.....	132,180	25,510	78,245	4,980	240,915	19,760	1,980	15,360	—	37,100	278,015
Frank da Costa & Co.....	11,160	6,192	62,436	7,448	87,236	39,962	3,790	21,420	—	65,172	152,408
The Sears Pará Rubber Co.....	59,330	10,030	54,840	125	124,325	—	—	—	—	—	124,325
Denis Crouan....	—	—	14,720	—	14,720	64,430	9,010	1,200	—	74,640	89,360
Rudolf Zietz.....	6,670	820	10,560	173	18,223	21,254	1,709	24,708	2,059	49,730	67,953
R. Suarez.....	—	—	—	—	—	2,981	852	116	—	3,950	3,950
Pires, Teixeira & Co.....	1,880	—	870	—	2,750	—	—	—	—	—	2 750
Kanthack & Co.....	—	—	—	—	—	1,922	220	150	—	2,292	2,292
Direct from Manáos.....	40,120	4,839	5,896	32,778	83,633	85,686	16,557	17,566	3,985	123,794	207,427
Total for September.	295,610	66,261	265,567	45,504	672,942	273,905	39,729	88,540	6,664	408,838	1,081,780
Total for August.....	376,963	45,039	193,344	7,697	623,643	486,763	86,959	146,159	71,472	791,353	1,414,996
Total for July.....	148,853	28,698	102,431	28,796	308,748	151,995	24,461	119,417	49,211	345,084	653,832
Total, January-June.....	2,633,971	467,106	1,603,010	471,294	5,175,381	3,050,250	636,986	1,177,656	490,236	5,355,128	10,530,509
Total for 1900.....	3,455,397	607,704	2,164,352	553,291	6,780,714	3,962,913	788,135	1,531,772	617,583	6,900,403	13,681,117

MANGABEIRA RUBBER.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The declining prices for rubber in the countries of consumption, together with the extraordinary rise in Brazilian exchange, has made the gathering of Mangabeira rubber very little lucrative of late. First quality rubber, which in August, 1899, brought 120 milreis per 15 kilograms does not bring even 60 milreis to-day. The consequence will be felt in diminished production not only for the present, but possibly for months to come, because the rubber is gathered very far from the seaboard, and some of it takes weeks and even months to reach the nearest railway station. The exports from Santos last month, so far as we can learn, were very small, being confined to our own shipments to Hamburg, as in the margin. In July our house alone shipped about 15,000 kilograms. This means a great falling off, and hardly any increase is to be expected during the month of September.

	KILOGRAMS.
August 7	1899
August 8	52
August 16	1149
August 20-26	2821
Total	5921

SCHLODTMANN & ARNOLD.

Sao Paulo, Brazil, September 5, 1900. [Received New York, October 15.]

[THE annual report of the Mogyana Railway and Navigation Co., operating in the Brazilian state of São Paulo, for 1899, said: "The export of Mangabeira rubber was 103,153 kilos more than in 1898, and shows the development taken by this recent industry in the district served by our line." It was expected that the rate of increase would be continued during the present year, but our correspondence would indicate that this hope has not been realized.—THE EDITOR.]

THE BORDEAUX MARKET.

TO THE EDITOR OF THE INDIA RUBBER WORLD: In consequence of the yellow fever epidemic raging on the Senegal, the arrivals for September were greatly reduced. To check the progress of the disease, the new government of the western coast of Africa has taken rigorous steps which have deprived the rubber merchants of native carriers to forward their produce. The sanitary situation is improving without doubt, and in a very short time the arrivals will resume their normal course. There arrived in September:

By ss. *Richelieu*, 1252 bags Soudan	kilograms. 62,500
30 casks Gambia	6,000
By ss. *Tamesi*, 76 bags Soudan	4,000
By ss. *Ville de Maranaho*, 160 bags Conakry	8,000
Via Marseilles, 10 casks Madagascar Majunga	4,000
10 baskets Java	2,000
Total	86,500

Prices have remained firm, but there has been little demand. The following prices have been obtained:

Soudan twists, prime, red	francs.	7.60@8.30
do prime, white		6.80@7.05
do second and third		4.85@6.00
Soudan niggers, prime, black		7.15@7.35
do prime, white		6.80@6.95
Gambia, A P		7.40@7.60
do A, A M, B		4.60@6.95
Madagascar majunga, large balls, white inside		6.50@7.00
Java, tree, vine, lampang		8.00@8.50

Stocks, end of September: Soudan twists, 6000 kilos; niggers, 8500; Madagascar, 2000; Java, 5000—total, 22,000 kilos.

P. CHAUMEL.

RUBBER FACTORY SUPPLIES.

LINSEED OIL.—An advance of 4 cents per gallon in the price of linseed oil was announced October 22 by the American Linseed Co. This brings the price to 75 cents a gallon and makes a total increase for the past fortnight of 14 cents a gallon. According to reports sales by the company in the last two weeks have been larger than the preceding sixty days. The market for linseed oil has never been so high before. Last year it could be bought for 39 cents a gallon. Since that time prices have advanced steadily, and, according to handlers of the article, there is no chance for any radical decline in the near future.

TALC.—The Union Talc Co., of New York, has been incorporated at Albany, with a capital of $1,000,000. Directors: William A. Dinsmore, G. Herbert Taylor and George B. Hanford, of New York.

IMPORTS FROM PARA AT NEW YORK.

[*All the Figures Denote Pounds.*]

October 2.—By the steamer *La Plata*, from Manáos and Pará:

IMPORTERS.	Fine.	Medium.	Coarse.	Caucho.	Total.
New York Commercial Co.	138,900	21,500	66,500	600=	227,500
Crude Rubber Co.	63,600	8,200	57,300	.. ..=	129,100
Albert T. Morse & Co.	20,200	3,900	47,400	3,200=	74,700
Reimers & Co.	26,500	11,100	34,000	. ..=	71,600
Charles Ahrenfeldt & Son.	.....	.....	.....	63,300=	63,300
Otto G. Mayer & Co.	28,800	1,800	22,400	300=	53,300
Hagemeyer & Brunn	4,000	.....	1,700	.....=	5,700
Total	282,000	46,500	229,300	67,400=	625,200

October 15.—By the steamer *Cametense*, from Manáos and Pará:

Crude Rubber Co.	187,500	28,000	52,900	800=	269,200
New York Commercial Co.	103,400	21,900	69,900	1,200=	196,400
Reimers & Co.	100,900	18,800	54,300	1,200=	175,200
Albert T. Morse & Co.	18,600	3,600	38,400	18,700=	79,300
Otto G. Mayer & Co.	39,900	2,500	32,200	.....=	74,600
Boston Rubber Shoe Co.	13,300	1,200	2,300	1,200=	18,000
Total	463,600	76,000	250,000	23,100=	812,700

[NOTE.—The steamer *Polycarp* sailed from Pará on October 16, having on board 460 tons of rubber for New York, and arrived October 28.

PARA RUBBER VIA EUROPE.

		POUNDS.
SEPT. 26.—By the *Oceanic*=Liverpool:		
Otto G. Mayer & Co. (Fine and Medium)	12,800	
A. T. Morse & Co. (Fine and Medium)	11,800	
George A. Alden & Co. (Caucho)	6,400	
Crude Rubber Co. (Caucho)	6,400	37,100
OCT. 1.—By the *Campania*=Liverpool:		
George A. Alden & Co. (Fine)	17,200	
George A. Alden & Co. (Caucho)	10,500	
Crude Rubber Co. (Caucho)	10 500	
Reimers & Co. (Fine)	17,000	
Albert T. Morse & Co. (Fine)	11,100	66,300
OCT. 4.—By the *Teutonic*=Liverpool:		
George A. Alden & Co. (Fine)	58,700	
Reimers & Co. (Fine)	18,300	77,000
OCT. 8.—By the *Etruria*=Liverpool:		
George A. Alden & Co. (Fine)	34,000	
George A. Alden & Co. (Fine)	22,500	
Crude Rubber Co. (Coarse)	11,500	
Otto G. Mayer & Co. (Coarse)	12,000	80,000
OCT. 12.—By the *Germanic*=Liverpool:		
New York Commercial Co. (Caucho)	27,000	
Crude Rubber Co. (Coarse)	11,000	
Crude Rubber Co. (Caucho)	27,000	65,000
OCT. 12.—By the *Servia*=Liverpool:		
Crude Rubber Co. (Caucho)	27,000	
New York Commercial Co. (Caucho)	27,000	54,000
OCT. 13.—By the *Lucania*=Liverpool:		
George A. Alden & Co. (Fine)	9,000	
Crude Rubber Co. (Fine)	32,000	
Crude Rubber Co. (Caucho)	30,000	
New York Commercial Co. (Caucho)	27,000	
Reimers & Co. (Fine)	19,000	
Reimers & Co. (Coarse)	11,500	128,500
OCT. 15.—By the *St Paul*=Southampton:		
Reimers & Co. (Caucho)		22,000
OCT. 15.—By the *Cap Frio*=Hamburg:		
Otto G. Mayer & Co. (Fine)	4,500	
Otto G. Mayer & Co. (Coarse)	3,500	8,000
OCT. 18.—By the *Majestic*=Liverpool:		
Reimers & Co. (Fine)		22,500
OCT. 19.—By the *Patricia*=Hamburg:		
Otto G. Mayer & Co. (Fine)		11,500
OCT. 22.—By *La Bretagne*=Havre:		
A. T. Morse & Co. (Caucho)		8,500
OCT. 22.—By the *Umbria*=Liverpool:		
Reimers & Co. (Fine)	11,500	
Reimers & Co. (Coarse)	11,500	
George A. Alden & Co. (Fine)	11,500	
Crude Rubber Co. (Fine)	11,500	
William Wright & Co. (Coarse)	4,000	50,000

OTHER IMPORTS AT NEW YORK.

CENTRALS.

		POUNDS.
SEPT. 22.—By the *Biela*=Bahia:		
J. H. Rossbach & Bros	7,500	
Eimenhorst & Co.	2,500	
L. Johnson & Co.	2.000	12,000
SEPT. 24.—By the *Yucatan*=Mexico:		
Fred Probst & Co.	1,000	
P. Harmony Nephews & Co.	500	
H. Marquardt & Co	300	
E Steiger & Co.	200	
Flint, Eddy & Co	100	2,100
SEPT. 24.—By the *Bulgaria*=Hamburg:		
Reimers & Co. (Angostura Fine)	23,300	
Livesey & Co.	3,000	26,300
SEPT. 24.—By the *Umbria*=Liverpool:		
George A. Alden & Co.	2,000	
Crude Rubber Co.	2,000	4,000

SEPT. 24.—By the *Alleghany*=Greytown:

G. Amsinck & Co	5,000	
Andreas & Co	2,500	
Samper & Co	5,000	
A. P. Strout	2,000	
Guiterman, Rosenfeld & Co	300	14,800

SEPT. 27.—By the *Prins Fred Hen'k*=Trinidad:

Thebaud Bros. (Angostura Fine)	1,500	
Thebaud Bros. (Angostura Coarse)	500	2,000

SEPT. 24.—By the *Kestor*=Colon:

Hirzel, Feltman & Co	14,200	
Flint, Eddy & Co	11,500	
Dumarest & Co	6,000	
G. Amsinck & Co.	4,000	
A. Santos & Co	6,000	
Frame, Alston & Co	3,000	
Isaac Brandon & Bros	3,500	
F. Nieto & Co	1,500	
Eggers & Heinlein	1,500	
D. N. Carrington	1,000	
Harburger & Stack	500	
Jimenez & Escobar	200	
K. Mandell & Co	100	53,100

SEPT. 20.—By *El Dorado*=New Orleans:

W. R. Grace & Co		2,500

SEPT. 29.—By the *Vigilancia*=Mexico:

E. Steiger & Co.	6,000	
H. W. Peabody & Co.	2,500	
H. Marquardt & Co.	500	9,000

OCT. 1.—By the *Campania*=Liverpool:

George A. Alden & Co	1,500	
Crude Rubber Co	1,500	3,000

OCT. 1.—By the *Altai*=Port Limon:

A. N. Rotholz	4,000	
Kunhardt & Co	600	4,600

OCT. 1.—By the *Louisiana*=New Orleans:

W. R. Grace & Co	2,000	
A. N. Rotholz	1,000	3,000

OCT. 2.—By the *Alliance*=Colon:

Flint, Eddy & Co.	3,000	
G. Amsinck & Co	3,000	
Roldan & Van dickel	1,700	
James Hardman	600	8,300

OCT. 4.—By *El Rio*=New Orleans:

A. T. Morse & Co.	10,000	
W. R. Grace & Co.	6,000	
Eggers & Heinlein	1,500	17,500

OCT. 6.—By the *Orizaba*=Mexico:

H. Marquardt & Co	700	
E. Steiger & Co	200	
Thebaud Brothers	200	1,100

Oct. 8.—By the *Bellagio*=Maceio:

Lawrence Johnson & Co		2,000

OCT. 8.—By the *Alene*=Savanilla:

John Boyd	5,000	
G. Amsinck & Co	2,000	
Kunhardt & Co	1,000	
Jimenez & Escobar	1,000	
A. P. Strout	700	
Mecke & Co	700	10,400

OCT. 9.—By the *Jessica*=Colon:

Flint, Eddy & Co.	13,000	
G. Amsinck & Co	12,100	
Dumarest & Co.	4,500	
Hirzel, Feltman & Co	4,500	
Isaac Brandon & Bros.	3,500	
Lanman & Kemp	3,000	
Czarnikow, McDougal & Co	3,000	
Silva Bossmeirs & Co	2,700	
D. N. Carrington	1,700	
Kunhardt & Co.	1,000	
A. P. Strout	600	
R. G. Barthold	500	
W. R. Grace & Co	500	
W. Loaiza & Co	200	50,800

OCT. 11.—By the *Hildur*=Maracaibo; Hamburg (Angostura Fine) 4,000

OCT. 13.—By the *Seguranca*=Mexico:

H. Marquardt & Co	800	
Tibbals & Blossom	700	
H. W. Peabody & Co	1,000	
J. W. Wilson & Co	500	3,000

OCT. 15.—By the *Bellanoch*=Bahia:

J. H. Rossbach & Bros		15,000

OCT. 15.—By the *Comus*=New Orleans:

A. T. Morse & Co.	2,000	
Eggers & Heinlein	1,000	
Harburger & Stack	1,000	4,000

Oct. 15.—By the *Athos*=Savanilla, etc.:

Jimenez & Escobar	3,500	
A. N. Rotholz	2,000	
Kunhardt & Co	800	
G. Amsinck & Co.	1,000	7,300

OCT. 17.—By the *Marquette*=London:

Otto G. Mayer & Co		11,500

OCT. 18.—By the *Seneca*=Mexico:

Flint, Eddy & Co	1,000	
Louis Monjo, Jr. & Co	500	
H. Marquardt & Co	300	
Tibbals & Blossom	300	2,100

OCT. 19.—By the *Hudson*=Colon:

Lanman & Kemp	3,400	
G. Amsinck & Co	2,300	
Flint, Eddy & Co	2,000	
E. Schetelin & Co	1,900	
A. P. Strout	1,300	
Eggers & Heinlein	1,000	
Lussdorff Laids & Co	400	
Kunhardt & Co	400	
D. N. Carrington & Co	200	
L. Johnson & Co	200	
Pomares & Cushman	100	
Munoz & Espriella	100	13,200

OCT. 19.—By the *Patricia*=Hamburg:

Otto G. Mayer & Co		15,000

OCT. 20.—By the *Yucatan*=Mexico:

E. Steiger & Co	6,000	
Thebaud Bros	1,500	
H. Marquardt & Co.	700	8,200

OCT. 22.—By the *Alleghany*=Greytown:

D. A. De Lima & Co	8,500	
A. P. Strout	7,000	
Andreas & Co	1,500	
G. Amsinck & Co.	400	
For London	1,000	18,400

OCT. 23.—By the *Advance*=Colon:

Isaac Brandon & Bros	3,500	
Crude Rubber Co	2,500	
Piza Nephews & Co	1,000	7,000

OCT. 23.—By the *Louisiana*=New Orleans:

A. T. Morse & Co	5,000	
A. N. Rotholz	1,000	6,000

AFRICANS.

SEPT. 24.—By the *Bulgaria*=Hamburg: POUNDS.

George A. Alden & Co		25,000

SEPT. 24.—By the *Umbria*=Liverpool:

George A. Alden & Co	8,000	
Crude Rubber Co	9,500	
A. D. Straus & Co	17,000	33,500

SEPT. 24.—By the *Philadelphian*=Liverpool:

Reimers & Co		22,500

SEPT. 25.—By the *Spaarndam*=Rotterdam:

Reimers & Co		15,500

SEPT. 26.—By the *Oceanic*=Liverpool:

Reimers & Co.		4,000

SEPT. 27.—By the *Pennsylvania*=Hamburg:

Reimers & Co		44,500

SEPT. 28.—By the *Milano*=Hamburg:

Albert T. Morse & Co		10,000

OCT. 1.—By the *Campania*=Liverpool:

Otto G. Mayer & Co	10,000	
Livesey & Co	5,500	15,500

OCT. 3.—By the *Southwark*=Antwerp:

George A. Alden & Co	148,500	
Crude Rubber Co	148,500	
Albert T. Morse & Co.	70,000	
Reimers & Co	27,000	
Joseph Cantor	18,000	412,000

OCT. 6.—By the *Pretoria*=Hamburg:

Reimers & Co		4,500

OCT. 8.—By the *Etruria*=Liverpool:

George A. Alden & Co	11,500	
Crude Rubber Co	11,500	23,000

OCT. 12.—By the *Germanic*=Liverpool:

George A. Alden & Co	37,000	
Crude Rubber Co	10,000	
Reimers & Co	22,000	
Livesey & Co.	5,500	
O. G. Mayer & Co	22,500	96,000

OCT. 12.—By the *Lucania*=Liverpool:

George A. Alden & Co	3,500	
Crude Rubber Co	3,000	
Mark Hydes & Co	1,000	7,500

OCT. 15.—By the *Georgian*=Liverpool:

A. T. Morse & Co.		11,000

OCT. 15.—By the *Cap Frio*=Hamburg:

O. G. Mayer & Co	8,500	
Reimers & Co.	2,000	10,500

OCT. 16.—By the *Amsterdam*=Rotterdam:

Reimers & Co.		28,000

OCT. 19.—By the *Patricia*=Hamburg:

George A. Alden & Co	45,000	
Livesey & Co.	7,000	52,000

OCT. 22.—By the *Umbria*=Liverpool:

Crude Rubber Co	11,000	
George A. Alden & Co	11,500	
Livesey & Co.	10,000	32,500

EAST INDIAN.

SEPT. 26.—By the *Furnessia*=Glasgow: POUNDS.

George A. Alden & Co		23,000

OCT. 1.—By the *Manitou*=London:

Reimers & Co. (Pontianak)		275,000

OCT. 6.—By the *Acara*=Singapore:

J. W. Greene & Co (Pontianak)	50,000	
Otto G. Mayer & Co. (Pontianak)	100,000	
William Wright & Co. (Pontianak)	210,000	360,000

OCT. 8.—By the *City of Rome*=Glasgow:

George A. Alden & Co		22,000

OCT. 13.—By the *Michigan*=London:

Reimers & Co. (Pontianak)		45,000

OCT. 17.—By the *Marquette*=London:

Reimers & Co. (Pontianak)		50,000

OCT. 18.—By the *Albenga*=Singapore:

William Wright & Co. (Pontianak)		45,000

GUTTA-PERCHA AND BALATA.

SEPT. 24.—By the *Bulgaria*=Hamburg: POUNDS.

Robert Soltau & Co		2,500

OCT. 15.—By the *Cap Frio*=Hamburg:

Robert Soltau & Co		5,000

OCT. 20.—By the *Californian*=Glasgow:

R. F. Downing & Co		2,500

BALATA.

OCT. 15.—By the *Prins Willem V.*=Surinam:

G. Amsinck & Co	2,500	
Frances Fraes	2,500	5,000

CUSTOM HOUSE FIGURES.

PORT OF NEW YORK—SEPTEMBER.

Imports:	POUNDS.	VALUE.
India-rubber	2,675,467	$1,446,306
Gutta-percha	14,677	2,876
Gutta-jelatong (Pontianak)	905,065	11,962
Total	3,595,209	$1,461,144
Exports:		
Gutta-percha	27,512	$13,048
Reclaimed rubber	187,306	27,637
Rubber Scrap Imported	1,626,512	$109,038

BOSTON ARRIVALS.

SEPT. 1.—By the *Michigan*=Liverpool: POUNDS.

Lot reported by Custom house but not traced; possibly not rubber	122,680

SEPT. 7.—By the *Ultronia*=Liverpool:

Reimers & Co.—Pará fine	14,127

SEPT. 8.—By the *Sagamore*=Liverpool:

Reimers & Co.—Pará fine	28,372

SEPT. 13.—By the *Saxonia*=Liverpool:

Reimers & Co.—Pará fine	52,871

SEPT. 24.—By the *Kansas*=Liverpool:

George A. Alden & Co.—African	2,610	
Crude Rubber Co.—African	2,555	5,165

	POUNDS.	VALUE.
Total, January	105,946	$69,329
Total, February	109,763	65,290
Total, March	81,489	55,950
Total, April	141,398	90,607
Total, May	53,285	36,126
Total, June	39,376	22,016
Total, July	115,865	56,897
Total, August	127,972	71,851
Total, September	223,215	143,009

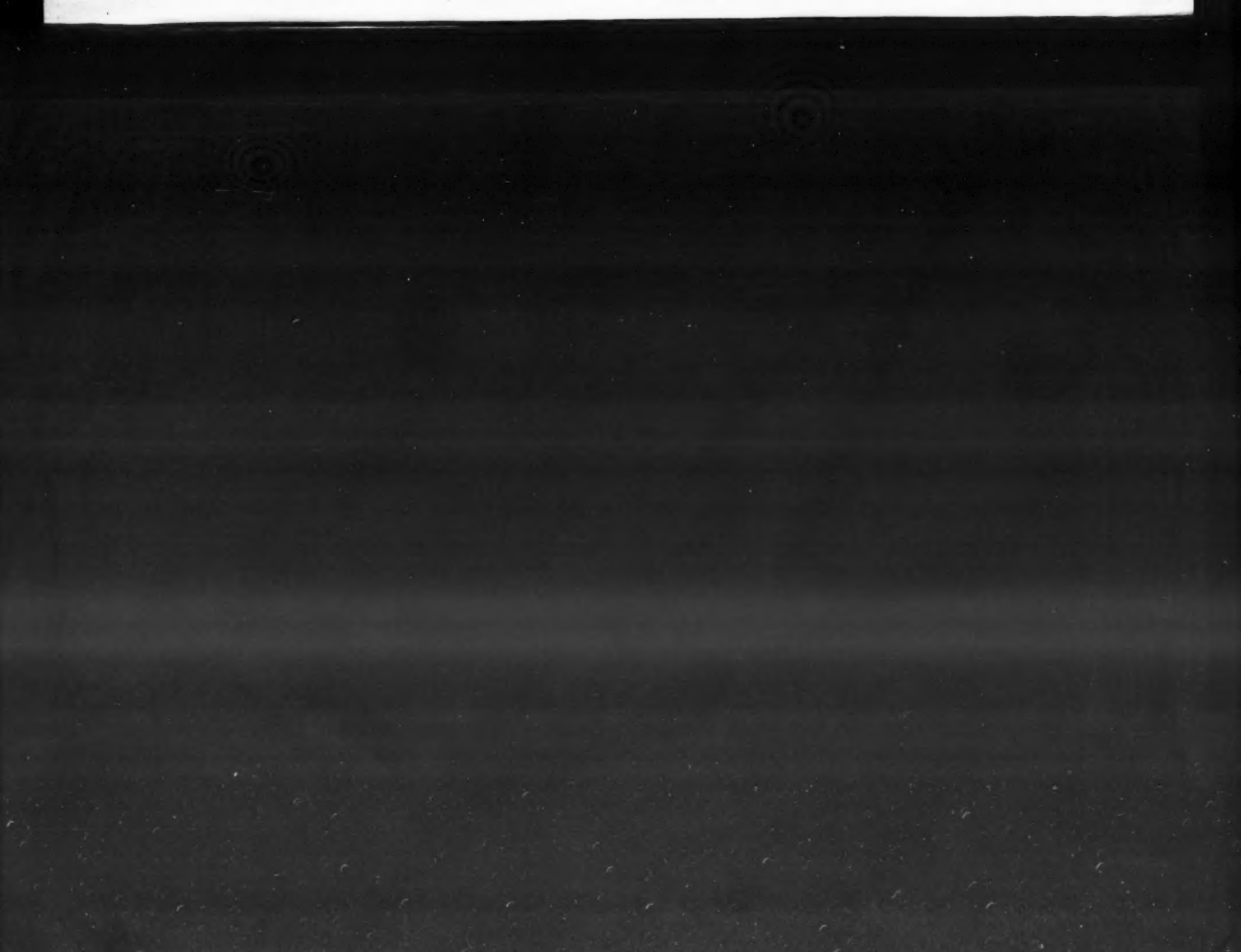
GUTTA-PERCHA.

SEPT. 4.—By the *Anglian*=London: POUNDS.

George A. Alden & Co.	10,993

SEPT. 13.—By the *Guernsey*=Hamburg:

George A. Alden & Co	2,866
Total	13,859



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"Eureka," "Paragon" and other High Grades of Cotton Fire Hose.
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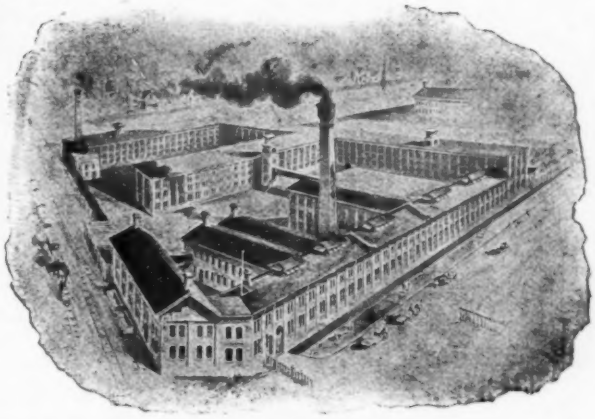

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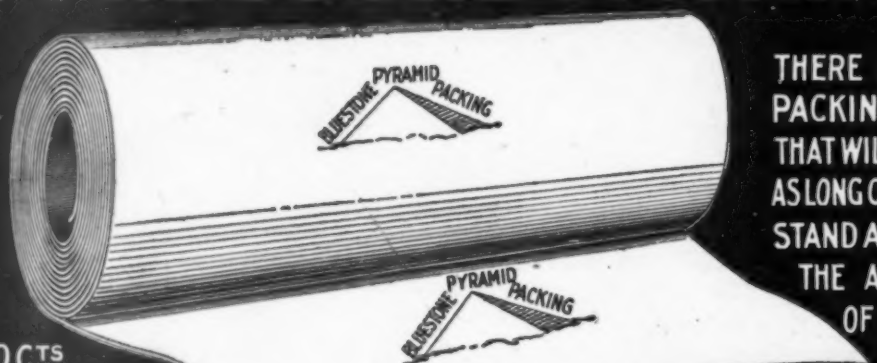

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